Archaeological Survey of 73 Artillery Firing Points: Fort Bragg Training Area, Cumberland and Hoke Counties, North Carolina

Charles L. Heath
and
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Cultural Resources Management Series
Research Report, No. 3.

Fort Bragg Cultural Resources Management Program
Directorate of Public Works
XVIII Airborne Corps and Fort Bragg
Fort Bragg, North Carolina

March 2006

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14. ABSTRACT This report is third in a series of archaeological survey/site testing reports generated by the Fort Bragg Cultural Resources Management Program (CRMP). The series is intended to periodically present the results of archaeological investigations on Fort Bragg and Camp Mackall conducted by the staff of the CRMP. This report details the results of archaeological surveys conducted on Artillery Firing Points (AFPs) for the Integrated Training Area Management (ITAM) Program's Land Rehabilitation and Maintenance (LRAM) component between February 1998 and May 1999. It is the first installment in a planned series of LRAM AFP survey/site assessment studies. To date, 73 AFPs (754-acres) have been surveyed and cleared for unrestricted training and LRAM activities. The findings at 32 prehistoric/ historic period sites/occurrences are presented here. Additionally, four sites/occurrences recorded in a 1998 survey for Operation Purple Dragon (OPD), are included as well. These resources were all designated as ineligible for inclusion on the NRHP.

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Management Summary

This report is the third in a series of archaeological survey and site testing reports generated by the Fort Bragg Cultural Resources Management Program (CRMP). The series, *Cultural Resources Management Series Research Reports* (Culpepper et al. 2000; Irwin et al. 1998), is intended to periodically present the results of archaeological investigations on Fort Bragg, Camp Mackall and Simmons Army Airfield conducted by the staff of the Fort Bragg CRMP. The report series summarizes the results of the Fort Bragg CRMP's efforts to facilitate US Army compliance with Army Regulations and Federal legislation mandates to identify, assess and/or protect historically significant cultural resources on public trust properties managed or utilized by XVIII Airborne Corps and Fort Bragg affiliated personnel.

This report details the results of archaeological surveys (Phase I) conducted on Artillery Firing Points (AFP) for the Fort Bragg Integrated Training Area Management (ITAM) Program's Land Rehabilitation and Maintenance (LRAM) Component between February of 1998 and May of 1999. The principle objectives of the LRAM AFP surveys are to identify previously unknown prehistoric or historic period archaeological sites and to determine: (1) site boundaries; (2) extent or degree of past disturbances by natural or anthropogenic forces; (3) eligibility of each site or occurrence for inclusion on the National Register of Historic Places (NRHP). Artillery Firing Point surveys and archaeological site assessments for LRAM are ongoing projects first initiated in 1998. The present report is the first installment in a series of LRAM AFP survey and site assessment reports.

To date, 73 AFPs (approximately 754-acres) have been completely surveyed and cleared for unrestricted military training and LRAM rehabilitation activities (Appendix D).[1] The average sizes of the 73 presently surveyed AFPs vary from 1.1-to-30.4-acres each. These comparatively small tracts are selectively distributed throughout the Fort Bragg Training Area, west of the urban developed cantonment and the Old Post District, and south of the Lower Little River. To date, 57 archaeological sites or occurrences have been recorded by the Fort Bragg CRMP staff and investigated as part of the LRAM AFP survey project. Thirty-two sites and occurrences were originally deemed ineligible for inclusion on the NRHP. The findings made at these 32 ineligible, prehistoric and historic period sites or occurrences are presented in this report (Table 1)—data on the other 25 AFP sites will be presented in future survey or site testing reports. In addition to the LRAM AFP sites and occurrences reported herein, four sites and occurrences recorded and assessed in a 1998 archaeological survey for a Joint Services military exercise, Operation Purple Dragon (OPD), are included as well. These resources were also designated as ineligible for inclusion on the NRHP.

[1] Includes surveys conducted by the Fort Bragg CRMP staff (572-acres[49 AFPs]) and surveys conducted by commercial contract firms (182-acres[24 AFPs]) as components of larger "block surveys" completed between 1998 and 2005.

Management Summary (*Continued*)

Table 1. Summary site and occurrence data.

NCOSA Site Number	Chronological Period E. (Early), M. (Middle), L. (Late)	Site (S) Occurrence (O)	NRHP Eligible	Accession No.	UTM* Coord. Easting	UTM* Coord. Northing
31CD769	prehistoric	O	N	980176	677900	3888060
31HK631/631	prehistoric and M. 20th c.	O	N	980155	663000	3880020
31HK636	L. Paleo-Indian—E. Archaic	O	N	980160	671190	3887025
31HK642	M.—L. Woodland	S	N	980167	665345	3880560
31HK643	M. Woodland	S	N	980168	667570	3879840
31HK644	prehistoric	S	N	980169	667695	3879805
31HK646	prehistoric	O	N	980171	665785	3880890
31HK649	L. Woodland	S	N	980181	666420	3892105
31HK665	prehistoric	O	N	980266	654595	3882705
31HK666	prehistoric	O	N	980267	654360	3882625
31HK667	prehistoric	O	N	980268	654180	3882535
31HK668	prehistoric	S	N	980269	653990	3882550
31HK669	L. 19th—E. 20th c.	O	N	980270	654145	3882475
31HK671	M. Archaic	S	N	980272	654340	3882380
31HK684	prehistoric	O	N	980377	658040	3891600
31HK686	L. Woodland	O	N	980379	665170	3887910
31HK687	E.-M. Archaic	S	N	980380	665050	3887870
31HK689	prehistoric	S	N	980382	661140	3882320
31HK690/690	prehistoric and M. 20th c.	O	N	980383	661160	3882360
31HK691	prehistoric	S	N	980384	661320	3882270
31HK693	M. Archaic	S	N	980386	660795	3893790
31HK694	prehistoric	O	N	980387	659920	3894080
31HK695	L. 19th—E. 20th c.	S	N	980388	660080	3894060
31HK696	M. Archaic	S	N	980389	660150	3894130
31HK697	prehistoric	S	N	980390	664960	3888350
31HK698	M. Archaic	S	N	980391	655590	3880880
31HK699	prehistoric	S	N	980392	655540	3880780
31HK700	prehistoric	O	N	980393	655520	3880690
31HK847	prehistoric	O	N	980780	664930	3888150
31HK858	prehistoric	S	N	980791	671780	3889385
31HK860	prehistoric	S	N	980792	671760	3889260
31HK861	prehistoric	S	N	980793	671890	3889530
31HK863/863	M. Archaic and E. 20th c.	S	N	980795	660980	3883400
31HK864/864	prehistoric L. 19th—E. 20th c.	S	N	980796 990796	661080	3883410
31HK875	Terminal Archaic	O	N	990118	653770	3888220
31HK887	prehistoric	O	N	990130	658215	3883595

* All UTM grid coordinate values based on the 1927 North American Datum (Continental United States [NAD-27 CONUS]).

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Table of Contents

List of Figures

List of Figures (*Continued*)

List of Tables

List of Tables (*Continued*)

I: INTRODUCTION

This report details results of ongoing Cultural Resource Management (CRM) projects undertaken by Fort Bragg Cultural Resources Management Program (CRMP) personnel. The Fort Bragg CRMP conducts compliance-oriented CRM projects and related historical and cultural research on public trust properties utilized by military units stationed, or otherwise engaged, at Fort Bragg, Camp Mackall or Simmons Army Airfield. This report is the third in a series of external CRM summary reports (Culpepper et al. 2000; Irwin et al. 1998) generated under the auspices of the Fort Bragg CRMP.

The Fort Bragg CRMP's primary mission at Fort Bragg is to assist the United States (US) Army in its compliance with Army regulations and federal legislation[3] designed to avoid adverse effects (e.g., facilities maintenance and construction, field training, timber harvesting, erosion control, drop zone or artillery firing point maintenance, etc.) on known, or yet undiscovered, cultural resources (i.e., archaeological sites, historic structures, historic landscapes) found on Fort Bragg. Fort Bragg CRMP management activities are, however, accomplished in a manner that compliments overall US Army stewardship goals—to "manage its lands in a sound manner to ensure no net loss of training capabilities and support current and future training and mission requirements" (Department of the Army 1999). The CRMP is organized and staffed to enhance the Army's training mission by conducting "immediate-response" CRM surveys in training areas not previously surveyed for cultural resources. Immediate-response CRM surveys allow Army trainers to successfully achieve the US Army's parallel missions of realistic, wartime readiness training and environmental stewardship (United States Army Environmental Center [USAEC] 1993). To achieve these overarching program goals, CRMP personnel primarily conduct small-scale surveys in previously unsurveyed areas at the request (i.e., "training activity requests/dig requests") of individual combat arms, combat support, and non-combat support units (e.g., US Army, US Marine Corps, US Air Force, US Army Reserve, US Army National Guard) that use training lands on Fort Bragg. Small-scale, immediate-response surveys in areas of potential effect (APE) (i.e., locations where ground disturbing activities are planned) complement commercially contracted, large-scale surveys as part of the US Army and Fort Bragg's overall commitment to environmental management and stewardship of public trust lands.

To sustain combat readiness, soldiers at Fort Bragg continuously train to gain proficiency and expertise in many skill areas under conditions that reflect the realism, conditions, intensity and density experienced on the 21st century's three-dimensional battlefield. Because of this focus on realistic wartime training, Fort Bragg's training lands are the most heavily used in the world. Management of the training load on Fort Bragg training lands demands creativity and innovation in the effort to manage a high frequency of maneuver training operations, including over 10,000 live fire exercises, 190,000 aircraft operations, and 7,000 airborne exercises conducted each year. Effective land and environmental management programs are critical to the overall success of Fort Bragg's multi-faceted missions as a "world class Power Projection Platform" (XVIII Airborne Corps and Fort Bragg n.d.).

Due to the extensive and intensive use of training lands, wartime readiness training at Fort Bragg poses a significant threat to prehistoric and historic period cultural sites. Of the 162,597 acres of land presently controlled by the XVIII Airborne Corps and Fort Bragg, 122,709 acres are managed under the Integrated Cultural Resources Management Plan (ICRMP). Areas not managed for archeological resources include "urban" developed portions of the Cantonment ("Main Post" [6,849 acres]) and four

[3] National Historic Preservation Act (Public Law 89–665, as amended by Public Law 96–515); Guidelines for Federal Agency Responsibilities, under Sections 106 and 110 of the National Historic Preservation Act (53 FR 4727–46), Protection of Historic and Cultural Properties (36 CFR 800); Army regulation (AR 200-4 and DA PAM 200-4).

major artillery/small arms Impact Areas (33,039 acres). To date, cultural resources inventories of approximately 76% (94,000 acres) of Fort Bragg's surveyable lands (excluding Impact Areas and the "built environment") are in-process or have been completed. At this time, over 4,700 prehistoric or historic period archaeological sites or occurrences, historic structures, and historic cemeteries have been recorded on Fort Bragg. The urban developed Cantonment, while mostly exempt from archeological survey, has been inventoried for historic (ca. 1918—1956) military structures and associated resources.

The Fort Bragg CRMP presently manages a total of 410 archaeological sites, 372 historic buildings and structures, 27 cemeteries, three historic districts and two historic landscapes considered eligible for listing on the National Register of Historic Places (NRHP). An additional 307 archaeological sites and occurrences, most of which were originally located through surface collection survey in the mid-1970s (Loftfield 1979), are presently protected pending further NRHP eligibility assessments. NRHP eligible cultural resources sites at Fort Bragg include sites from every known time period of human occupation in the Sandhills region from early Paleo-Indian (ca. 12,000—10,000 B.C.) hunting, collecting and processing camps, to a Civil War battlefield, to late 18th and 19th century farmsteads or naval stores (longleaf pine gum) extraction sites, to military buildings constructed by the US Army (ca. 1918—1956).

These archeological and historic building sites were inhabited or utilized by a range of ethnically diverse peoples through time including: American Indian (ca. 12,000 B.C.—A.D. 1730), African-Americans and Euro-Americans (ca. A.D.1730—1918), and US military personnel or dependents (ca. 1918—2005). Over 4,200 of the archaeological sites and occurrences on the installation are prehistoric period habitation or activity sites. The majority of documented prehistoric sites are perhaps best classified as small temporary occupation or special activity (e.g., stone tool-making/tool maintenance workshops) sites used by mobile hunter-gatherers during the Paleo-Indian through Woodland periods (ca. 12000—1000 B.C.). While stone tools continued to be used in the later Woodland period (ca. 1000 B.C.—A.D. 1730), the presence of prehistoric ceramics differentiates these sites from the earlier Archaic period sites.

Late Woodland period villages or permanent settlements, while apparently common in the adjacent Piedmont and Outer Coastal Plain regions (Phelps 1983; Ward and Davis 1999), appear to have been rare, if not absent, in the Sandhills during the Late Woodland period. Alternately, temporary camps or semi-sedentary horticultural sites, generally located at tributary stream heads, or on gently sloping ridge spurs adjacent to tributary streams, are seemingly the most common type of Woodland site on Fort Bragg (Culpepper et al. 2000; Irwin et al. 1998). With the European colonization of the Sandhills region sometime after A.D. 1730-to-1740, Euro-American yeoman farmers and aspiring planters gradually settled along the major rivers (Upper Little River, Lower Little River) and larger tributary streams (Rockfish Creek, Cross Creek) of the Cape Fear River. Since many of the well-drained soil types found in the Sandhills are not particularly conducive to large-scale agricultural production (United States Department of Agriculture [USDA] 1984), many early European settlers exploited the locally ubiquitous longleaf pine forests to extract naval stores and timber. Subsistence farming, cash cropping (e.g., cotton, corn), livestock production and the limited development of a turpentine distillery and cotton mill industry later complemented naval stores production in the mid-to-late 19th century (Heath 1999).

Historic period archeological sites on Fort Bragg include numerous upland farmstead, naval stores processing, rural church, school and mill (grist and saw mill) sites. Twenty-seven historic cemeteries, dating from the late 18th through the early 20th centuries, have been inventoried (Boyko and Kern 1997) and are presently maintained and protected. A unique archeological site, the Civil War battlefield at Monroe's Crossroads (31HK249), archaeologically investigated in 1993 (Scott and Hunt 1998), is the foundation of a US Army Staff Ride (Belew 1997), which serves as a professional development educational tool for Commissioned Officers and senior Non-Commissioned Officers (NCOs). Standing historic structures associated with the Euro-American settlement period include two

mid-19th century church buildings, the Long Street and Sandy Grove Presbyterian churches. The preserved churches and the associated cemeteries, now maintained by the US Army, materially connect living descendants of the historic congregations to the former communities of Argyll, Inverness, Quewhiffle and Manchester, which once thrived as commercial and social activity hubs in the region now encompassed by Fort Bragg. The Long Street and Sandy Grove churches are now the scenes of well-attended annual reunions and other activities (e.g., tours, living history events) hosted by the Fort Bragg (Heath 1999; XVIII Airborne Corps and Fort Bragg 2001).

Surviving US Army related historic structures and historic landscapes include the Old Post Historic District, comprised of 298 (contributing elements), ca. 1918—1945, Spanish Eclectic and Georgian Revival style structures, as well as a few pre-1918 non-military structures on Fort Bragg and Camp Mackall. The majority of the Old Post District structures are family housing units, but several former barracks complexes, mule barns, horse stables, and an early post hospital, now serve as administrative offices or as community commercial and recreational facilities. The recently acquired Overhills Estate property has 53 NRHP eligible structures (ca. 1900—1938) and one historic landscape. Once owned by the Rockefeller family, the early club, and later family resort, property was used as a seasonal retreat for golfing, tennis, hunting, horseback riding, fishing and boating. The estate simultaneously functioned as a commercial enterprise for the production of agricultural products and naval stores (XVIII Airborne Corps and Fort Bragg 2001).

In this report, we describe the results of an ongoing Artillery Firing Point (AFP) survey project originally initiated for the Fort Bragg Land Rehabilitation and Maintenance (LRAM) program in February of 1998. The reported AFP survey areas are located in previously unsurveyed training lands and require periodic landscape maintenance to ensure that the positions remain viable firing points (i.e., safe, accessible, useable). LRAM program personnel coordinate with the US Army and US Marine Corps combat engineering units that train on Fort Bragg to clear "historically designated" firing positions of trees and dense vegetation stands that prohibit, or otherwise restrict, live-fire artillery exercises. LRAM AFP maintenance generally involves the removal of scrub vegetation and immature oaks or pines. The AFP locations are typically roller-chopped (drum chopped) within the predetermined ("historic") boundaries of each firing point to reduce tree and scrub vegetation density.

Since LRAM AFP improvements involve ground-disturbing activities, these locations are subject to archaeological surveys to identify and avoid adverse effects on previously unknown archaeological resources. Unfortunately, the majority of the AFP locations surveyed are "repeat use" sites that have been heavily utilized by military units since the development of permanent artillery Impact Areas (e.g., McPherson, Coleman, MacRidge Impact Areas) after World War II. As such, many archaeological sites found on these AFPs are destroyed, or otherwise negatively impacted, from previous military activities (e.g., firebase construction, berming, command post bunker construction, powder charge and recoil pit excavation, tracked vehicle operations, etc.) and are, as such, not eligible for listing on the NRHP. Specifically, due to the magnitude of observed anthropogenic, and subsequent natural (e.g., aeolian erosion, fluvial erosion), disturbances, the investigated archaeological sites reported here are unlikely to yield additional significant archaeological data beyond that covered in this report.

To date, seventy-three LRAM AFP surveys (754-acres [Appendix D]) have resulted in the documentation and preliminary investigation of 57 previously unknown archaeological sites or occurrences by the Fort Bragg CRMP staff.[4] Thirty-two of the AFP sites and occurrences have been assessed to the extent that their respective eligibility statuses have been determined. These 32 sites and

[4] Includes surveys conducted by the Fort Bragg CRMP (572-acres [49 AFPs]) and surveys conducted by commercial contract firms (182-acres [24 AFPs]) as components of larger "block surveys" completed between 1998 and 2004.

Table 2. Summary site and occurrence data with associated Artillery Firing Point (AFP) designation, UTM grid location, project accession number and eligibility status.

Fig. 4 Key	NCOSA Site/Occ. No.	FBCRMP Site/Occ. Name	LRAM AFP No.	Site (S) or Occ. (O)	FBCRMP Access. No.	UTM* Coordinate Easting	UTM Coordinate Northing
1	CD769	Mud Top	**	O		677900	3888060
2	HK631	Raintree	**	O		663000	3880020
3	HK636	Todd	**	O		671190	3887025
4	HK642	Iron Butterfly	UU-102	S		665345	3880560
5	HK643	Grasshopper	TT-205	S		667570	3879840
6	HK644	Wild Iris	TT-205	S		667695	3879805
7	HK646	Snake Sign	TT-203	O		665785	3880890
8	HK649	Mill Bend	**	S		666420	3892105
9	HK665	Ground Zero 1	EE-205	O		654595	3882705
10	HK666	Ground Zero 2	EE-205	O		654360	3882625
11	HK667	Cherry Patch	EE-204	O		654180	3882535
12	HK668	Quartz Rubble	EE-204	S		653990	3882550
13	HK669	Thirsty Hill	EE-204	O		654145	3882475
14	HK671	Hot Chicken	EE-204	S		654340	3882380
15	HK684	Wildflower	AA-203	O		658040	3891600
16	HK686	Overlook	OP-11	O		665170	3887910
17	HK687	Bella Ray	OP-11	S		665050	3887870
18	HK689	Screaming Crow	HH-102	S		661140	3882320
19	HK690	Hemingray	HH-102	O		661160	3882360
20	HK691	Trash Hill	HH-201	S		661320	3882270
21	HK693	Upper Horse Crk.	V-101	S		660795	3893790
22	HK694	Tower West	Y-401	O		659920	3894080
23	HK695	Tower House	Y-401	S		660080	3894060
24	HK696	Tower East	Y-401	S		660150	3894130
25	HK697	OP 11 Isolate 2	OP-11	S		664960	3888350
26	HK698	Skanky Skink	FF-101	S		655590	3880880
27	HK699	Upper Sassafras	FF-101	S		655540	3880780
28	HK700	Lower Sassafras	FF-101	O		655520	3880690
29	HK847	OP 11 Isolate #1	OP-11	O		664930	3888150
30	HK858	Bunker Flat	M-101	S		671780	3889385
31	HK860	Jack	M-101	S		671760	3889260
32	HK861	Bunker Hill	M-101	S		671890	3889530
33	HK863	HH101A	HH-101	S		660980	3883400
34	HK864	HH101C	HH-101	S		661080	3883410
35	HK875	Frosty Flake	CC-103	O		653770	3888220
36	HK887	Washout Tail	GG-201	O		658215	3883595

* All UTM grid coordinate values based on the 1927 North American Datum (Continental United States [NAD-27 CONUS]).

** Operation Purple Dragon survey (no associated LRAM AFP).

occurrences are considered ineligible for inclusion on the NRHP and are included in this report (Table 2). Twenty-five AFP sites or occurrences are presently protected as NRHP eligible sites, pending further investigation and subsequent final eligibility determinations, and will be documented in later reports. Three AFP sites (31HK688, 31HK862, 31HK1646), originally designated as potentially eligible resources, have been further assessed (Phase II) and the results of these investigations (Phase I and Phase

II) will be presented in future reports (Herbert and Irwin 2006[draft]; Idol 2005). Of the AFPs surveyed to date, 73 firing points are permanently cleared for LRAM maintenance actions and unrestricted military training activities.[5] The acreage of the surveyed AFPs range from 1.1-to-30.4-acres. The comparatively small tracts are non-contiguous and scattered throughout the Fort Bragg Training Area, west of the Cantonment and south of the Lower Little River. For general reference purposes, the mapped locations of the surveyed AFPs, cleared for unrestricted military activities, are presented in Appendix D (Figure 65).

In addition to the 32 LRAM AFP sites and occurrences described here, one site and three occurrences located and recorded during a survey of Command Post (CP) bunker locations for the 1998 "Operation Purple Dragon" (OPD) exercise are also included in this report. Thirty-one additional archaeological resources identified during the OPD survey are presently protected, pending further investigation and eligibility determinations, and will be documented in a future report. Thirty of the 36 AFP/OPD sites and occurrences described in this report have only prehistoric components, two of the reported sites and occurrences were only utilized during the historic era, and four sites and occurrences have both prehistoric and historic period components (Table 1).

This report is organized in five primary sections including this introduction (Section I). A brief cultural context statement is presented in Section II. The specific methods implemented in both the field and laboratory phases of the LRAM/OPD survey projects are presented in Section III. The results of the surveys, including site descriptions, site maps, artifact analyses and individual site or occurrence recommendations are detailed in Section IV. A summary and a brief discussion of the findings are presented in Section V. References citing information in the supplementary appendices (A-E) are noted in the report text.

[5] Fourteen currently designated AFPs remain unsurveyed. These parcels will be included in future CRMP or commercial contract firm surveys.

II: NATURAL AND CULTURAL CONTEXTS

The natural and cultural environments of Fort Bragg and the Carolina Sandhills, both past and present, are discussed in some detail in numerous recent publications. As such, we have opted not to present natural or cultural environmental context narratives in this report. In lieu of a background culture history statement, we have included summary projectile point and ceramic typology charts for the southeastern Piedmont and Coastal Plain provinces of North Carolina. Figure 1 illustrates the regional geographic position of the Carolina Sandhills and Fort Bragg in relation to the Coastal Plain and Piedmont provinces. Figures 2 and 3 are simply heuristic devices that present a broad framework for modeling prehistory, and are designed to be revised as relevant archaeological data permit. These figures are based on a general synthesis and the interpretation of data taken from various relevant publications (e.g., Anderson 1996a, 1996b, 1996c; Anderson and Sassaman 1996a, 1996b; Anderson et al. 1996; Broster and Norton 1996; Chapman 1975, 1985; Clement et al 1997; Coe 1964, 1995; Daniel 1994, 1998; Driskell 1996; Eastman 1994; Futato 1996; Herbert 1997, 2002, 2003; Herbert et al. 2002; Justice 1987; Larsen and Schuldenrein 1990; Michie 1996; Oliver 1985; O'Steen 1996; Phelps 1983; Sassaman 1992, 1993, 1996; Sassaman et al. 1990; Ward 1983; Ward and Davis 1999). For detailed statements on regional natural and cultural environments specifically related to Fort Bragg, the reader should consult the following sources: Culpepper et al. (2000), XVIII Airborne Corps and Fort Bragg (2001), Goman (2003), Heath (1999), Herbert (2002, 2003); Herbert et al. 2002; Loftfield (1979); Nye (n.d.). These sources were consulted to provide the cultural contexts in which the LRAM AFP and OPD project sites and occurrences were initially evaluated, subsequently interpreted, and ultimately reported herein.

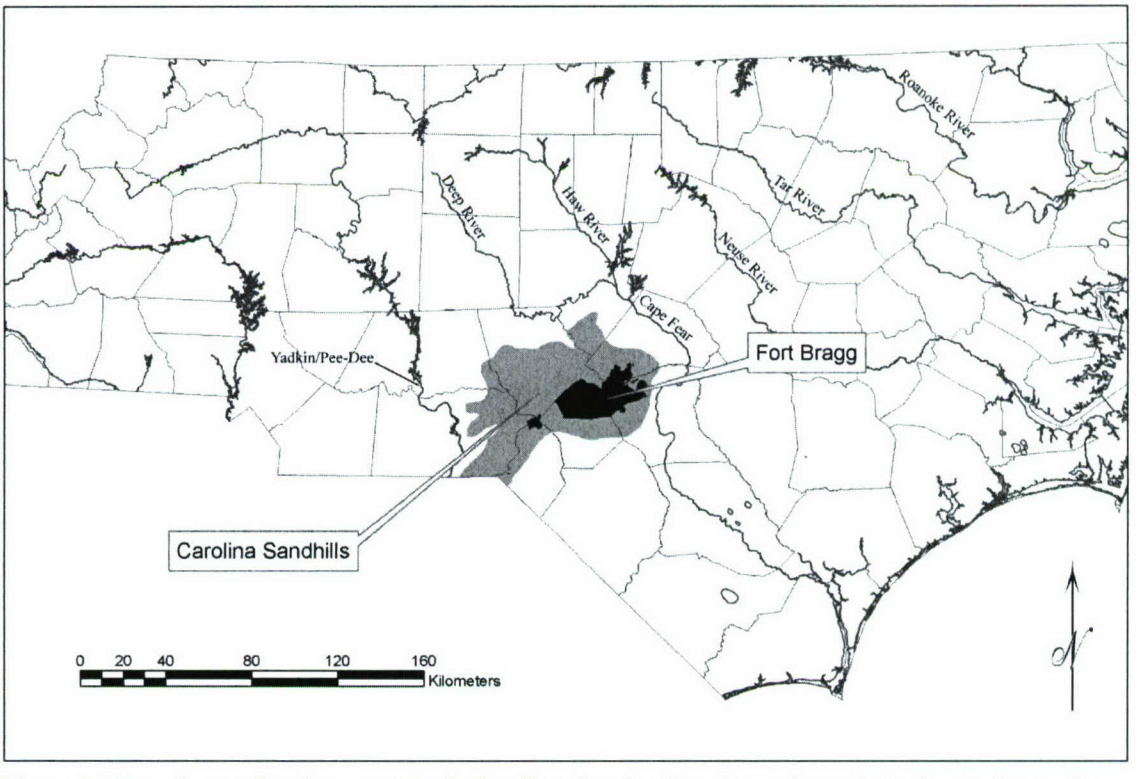

Figure 1. Map of central and eastern North Carolina showing Fort Bragg boundaries in relation to the Carolina Sandhills region and major river drainages.

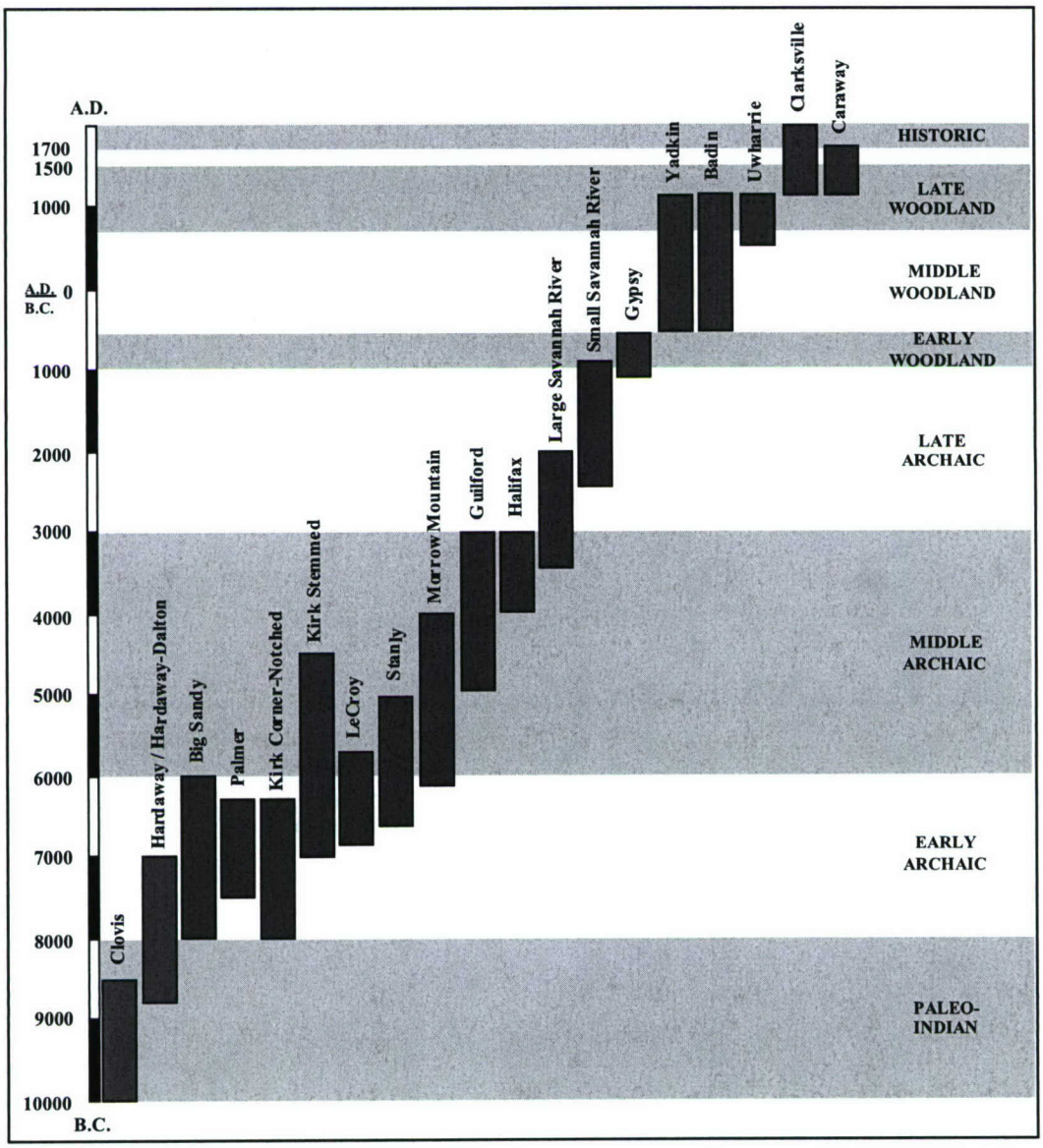

Figure 2. Generalized projectile point sequence (American Indian) for the southeastern Coastal Plain, Sandhills and eastern Piedmont of North Carolina (ms. on file FBCRMP).

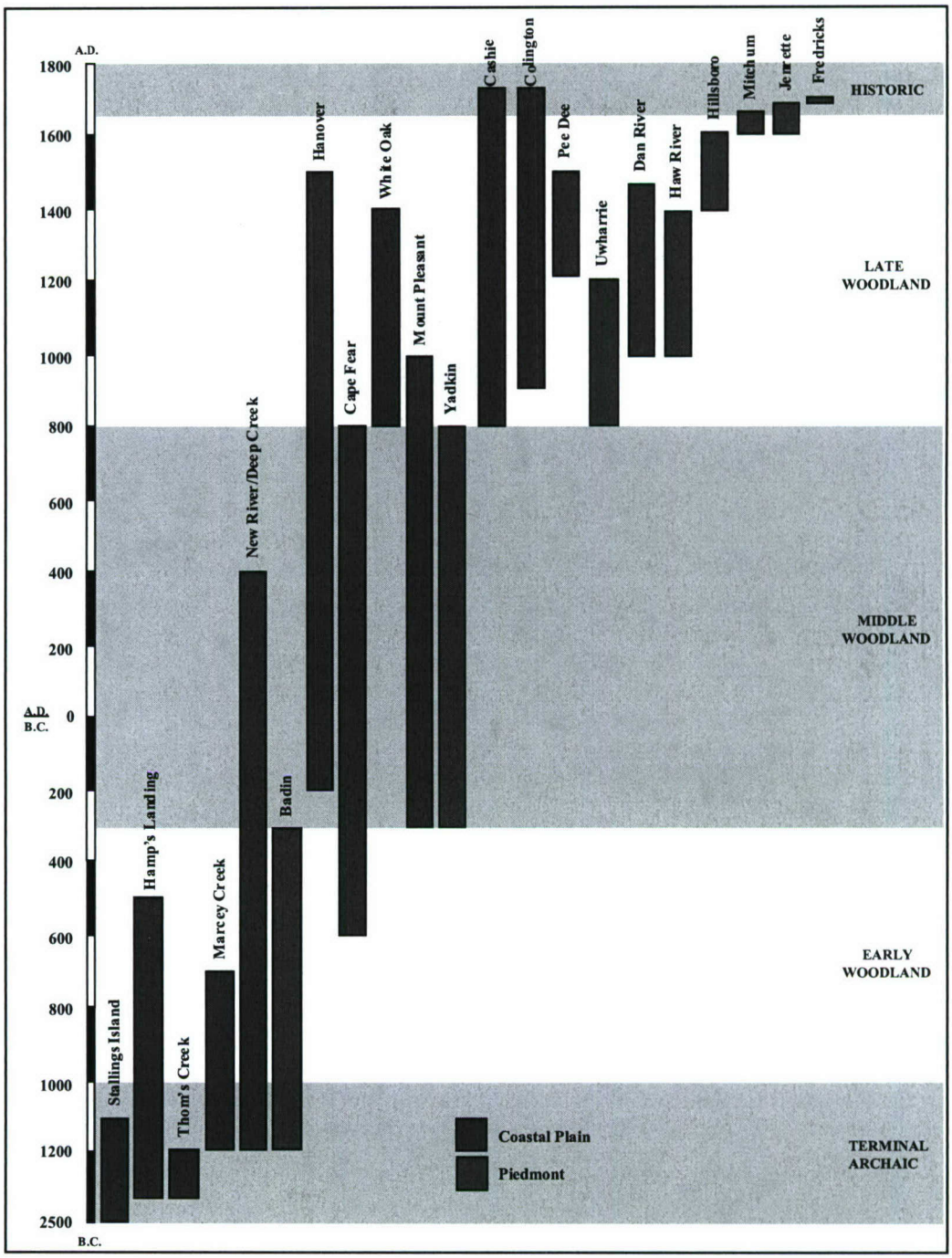

Figure 3. Generalized ceramic sequence (American Indian) for the southeastern Coastal Plain, Sandhills and eastern Piedmont of North Carolina (ms. on file FBCRMP).

III: RESEARCH METHODS[6]

The overarching goals of the Fort Bragg Training Area, archaeological surveys reported herein were fourfold:

1) Locate and record prehistoric and historic period archaeological sites.
2) Define site boundaries and determine site chronology.
3) Assess site significance and potential eligibility for listing on the National Register of Historic Places, as well as determine if additional research is necessary.
4) Clear training lands for unrestricted military training or construction activities.

The specific field and laboratory methods employed for each in-house survey project are determined by the:

1) Above stated goals.
2) Localized environmental conditions.
3) Guidelines (Standard Operating Procedures) as specified by the XVIII Airborne Corps and Fort Bragg Integrated Cultural Resources Management Plan (XVIII Airborne Corps and Fort Bragg 2001) and Army regulations (AR200-4).

Since the Artillery Firing Points (AFP) and designated Operation Purple Dragon (OPD) training areas surveyed, assessed and described in this report will be severely impacted by future training exercises (e.g., construction of artillery firebases, gun positions, bunkers, trenches, fighting positions), intensive investigations of the various project sub-areas were undertaken. The field survey methods varied according to individual project area conditions (Appendix C). In general, field methods consisted of systematic shovel testing and/or intensive surface collection inside the dictated AFP/OPD boundaries of each project sub-area. Portions of the survey areas considered as low probability for presence of cultural resources, based on past reported Fort Bragg CRMP survey data, were not investigated if the surveyed landforms exhibited conditions not especially conducive to past human occupation. For example, floodplain microenvironments with standing water, mucky soils or marsh vegetation were not tested. Portions of moderate slope areas (greater than 20% slope), which exhibited either a significant degree of erosion or extensive previous disturbance from military activities (e.g., road construction, timbering, training excavations), were eliminated from the surveys. Shovel testing was not generally conducted on highly eroded landforms (i.e., deflated soil columns), particularly in erosional gullies, on old roadbeds, or in heavily disturbed areas that exhibited extensive, surface visible alteration (e.g., military excavations, bulldozer "push piles," other types of modern disturbances). Such disturbed locations were, however, surface collected for cultural materials where visibility permitted (see Appendix C).

Subsurface evaluation of project sub-areas was employed on heavily vegetated or reasonably intact (i.e., lightly or moderately disturbed) landforms. Systematic shovel testing was generally accomplished on a 30-meter (m [98.5 foot]) interval grid system. Based on the area of potential effect (APE) for each project area, the cardinal orientation and number of shovel test transect lines varied accordingly. In such cases, shovel test transects were oriented either parallel with or perpendicular to permanent road features adjacent to each project area with a lensatic compass. Shovel test pits (STPs), minimally 30 centimeters (cm) diameter (1.0 foot [ft]), were excavated along each transect line on 30-m

[6] Refer to the XVIII Airborne Corps and Fort Bragg Integrated Cultural Resources Management Plan (ICRMP) for Standard Operating Procedures (SOP) related to the execution and reporting of archaeological surveys on Fort Bragg properties (XVIII Airborne Corps and Fort Bragg 2001).

intervals (minimum). This standard survey procedure was intensified on sites where STP units yielded cultural materials (i.e., "positive" STPs). In most instances, four radial STP units were excavated at 15-m (49.25 ft) intervals (minimum) around each positive STP. Radial STP units were positioned in cardinal (grid) directions around each initial positive STP unit. This additional subsurface testing procedure increased the:

1) Sample size of the associated artifact assemblages.
2) Probability of recovering diagnostic materials.
3) Resolution of site boundaries.

In instances where presumably undisturbed sites were initially identified by discrete surface collections, a 10 or 15-m interval grid, based on surface site size, was positioned in the centers of observed artifact loci. STPs were excavated to assess soil stratigraphy, define site boundaries and to sample potential subsurface deposits within the site or occurrence locale. Transect or STP grids on such sites were generally expanded until at least one negative STP was encountered in the four principal cardinal directions. If surface identified sites in heavily disturbed areas were encountered, random STPs were typically excavated on the site to confirm or refute the presumed extent of observed disturbances. In the case of the OPD survey areas, military units required the use of discrete excavation areas (10-x-10-m) that were well-defined in terms of spatial location and size. When subsurface testing at these locations was required, a basic cruciform STP grid was used to test the specific APE. The cruciform grid consisted of a single STP at the center of the APE and four radial STPs positioned in cardinal directions—15 m from the center STP. Field sketch maps, maintained for each surveyed area, indicate the orientation of transects and individual STPs in relation to topographic features.

On subsurface tested sites, site boundaries were defined by the spatial locations of the outermost positive STPs, followed by at least one negative STP, or by the maximum extent of associated surface collections. STPs varied in depth according to the stratigraphic profile in each project sub-area. All STPs were minimally excavated five cm (.16 ft) below the top of the B/Bt horizon (presumed Pleistocene-era subsoil). In instances where subsoil was not encountered, STP units were excavated to a minimum depth of one meter (3.3 ft) below surface. To recover material evidence of human activities, soils from each STP unit were sifted through portable screens fitted with one-quarter-inch (.64 cm) hardware cloth. Recovered artifact types and quantities from excavated STPs were recorded on standardized STP record forms. Recovered artifacts were placed in individual field collection bags marked with the appropriate provenience data including the site/survey area, transect number, STP number, and approximate depth of artifacts.

Representative soil profiles and soil descriptions were recorded for each area that received subsurface testing. Recorded soil colors were based on Munsell Soil Color Charts (1990). In general, the soil colors and soil type descriptions of the first STP unit in each project area where the natural soil column was found reasonably intact were Munsell coded. In instances of dramatic color/type variations, additional representative soil profiles were coded. Each STP unit was marked with surveyor's flagging tape in the immediate vicinity of the STP. Positive units were marked with a second color of flagging tape. Grid provenience coordinates were recorded on the survey flags to facilitate mapping and/or site relocation efforts.

Intensive surface collections were made in all moderate-to-high visibility (50% or greater surface visibility) locations (e.g., firebreaks, trails, erosional gullies, previous military excavations, or otherwise disturbed areas) within the project areas where vegetation cover was sparse enough to allow visual observation of artifacts on the surface. Where certain project areas were totally denuded of vegetation and obviously disturbed (i.e., homogenized soils exposed on surface, multiple open/refilled bunker positions) or eroded/scraped down to B/Bt-horizon sub-soil, surface collection was the sole survey

method employed. In such areas, site boundaries were mapped in relation to roads and trails within or adjacent to each project area. Where sites received subsurface testing, surface finds were recorded in relation to the closest adjacent STP unit. Five or more surface collected artifacts, recovered within a 50 m^2 area, were required for site status, while four or less artifacts, recovered within a 50 m^2 area, constituted an occurrence (i.e., isolate). Site boundaries along with prominent natural and/or cultural features were recorded on field sketch maps of each project area. On surface defined sites, site boundaries were determined by the maximum horizontal extent of the surface recovered materials.

All sites were recorded on field sketch maps, most of which were digitally redrawn and reproduced for this report. Topographic map and Global Positioning System (GPS) coordinate data (Trimble ScoutMaster or Garmin GPS12 XL hand-held GPS units) were used to determine the approximate UTM coordinates (+/-25 m) for each site or occurrence. Map estimated or GPS collected coordinates were plotted on USGS, 7.5-minute series (1:24,000 scale), topographic maps. Orthoquadrangle photographs (1:660 scale) from the 1996 Fort Bragg aerial photographic survey, and the Fort Bragg East (March 1995) and Fort Bragg West (March 1996) military grid (1:50,000 scale) topographic maps were consulted to complement the determination of site/occurrence and survey area locations.

The field data and recovered artifacts were processed at the Fort Bragg Cultural Resources Curation Facility (CRCF). All artifacts were washed, inventoried (see Appendix A for analysis criteria and artifact coding format) and numbered at the CRCF. The artifacts were processed, inventoried, labeled, packaged and curated in accordance with curation standards specified by Army regulation, Federal law[7] and North Carolina Office of State Archaeology (NCOSA) guidelines.[8] Catalog numbers further include the hyphenated suffix addition of unique, sequential numbers for segregation of each artifact type and provenience. Different artifact types within the same provenience are numbered with separate catalog numbers to facilitate future retrieval and analyses of specific artifact categories from stored collections (see Appendix B: Artifact Inventory). After the laboratory analyses of materials and data from each site were completed, NCOSA site forms (Forms III or VI) were completed for each site or occurrence recorded during the survey projects. All artifacts, original field notes, data forms, maps, photographs and report records are curated at the Fort Bragg CRCF.

[7] Army regulation (AR 200-4 and DA PAM 200-4); Federal law (36 CFR Part 79).
[8] *Archaeological Curation Standards and Guidelines* (NCOSA 1995).

IV: ARCHAEOLOGICAL SURVEY RESULTS

In this section, results of the 1998 Operation Purple Dragon (OPD) and ongoing LRAM Artillery Firing Point survey project are reported. As indicated in the Introduction (Section I), all investigated sites/occurrences recorded as part of these two overarching survey projects are not included in this report. Only sites and occurrences where definitive NRHP eligibility determinations were made are presented and discussed. Thirty-one OPD sites or occurrences and twenty-five LRAM sites or occurrences are presently classified in an "unknown" eligibility status pending further subsurface assessments. These 31 sites and occurrences will be covered in future large-scale survey reports. This section includes descriptions of four OPD and 32 LRAM project sites/occurrences, all of which have been deemed ineligible for inclusion on the NRHP (Figure 4). Since these sites and occurrences will not be subject to additional investigations, we opted to include somewhat more detailed site and artifact assemblage observations than typically discussed in most regional survey level reports. Given the dispersed spatial locations of the various LRAM and OPD survey tracts (Appendix D [Figure 65]), no attempt has been made to spatially group sites according to drainage, or to organize sites/occurrences in any particular order other than by the sequential North Carolina state site number. Within this section, site descriptions are followed by occurrence descriptions in separate sub-sections. General statements regarding the environmental settings of the survey areas and the sites/occurrences, which are all located on Fort Bragg proper can be found in: Culpepper et al. (2000), XVIII Airborne Corps and Fort Bragg (2001), Goman (2003) or Herbert, Feathers and Cordell (2002). Survey area and site-specific geographic or geologic information is presented where appropriate with the site, occurrence or survey area descriptions.

31HK642

Summary Data

Site Number: 31HK642
Site Name: Iron Butterfly
Cultural Component(s): Middle-to-Late Woodland and probable Archaic
County: Hoke
USGS 7.5' Quadrangle: Nicholson Creek
UTM (NAD-27): Easting—0665310 Northing—3880535
Landform: Upland spur slope
Elevation (Feet AMSL): 375
Slope Percent: 4-5
Slope Face: E-SE
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Lakeland sand
Nearest Water (Meters): 80
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category V
Surface Visibility (Time of Survey): 75-85%
Surface Collected Artifacts: Yes
Positive STPs: 4
Negative STPs: 16
Approximate Site Size (Meters^2): 4500
Observed Disturbance(s): Roads and trails, clear cutting, erosion and military excavations

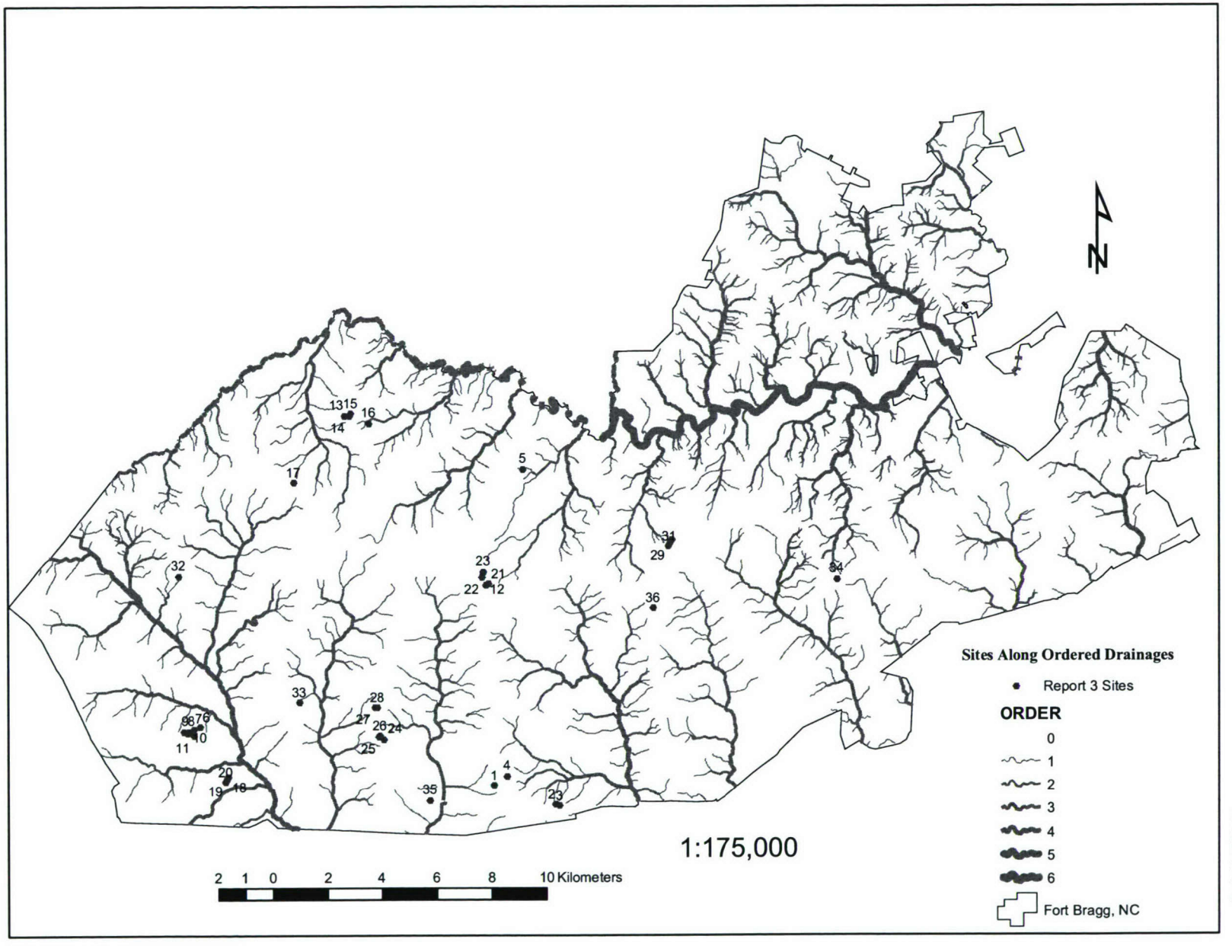

Figure 4. Map of Fort Bragg showing local stream hydrology and locations of reported sites and occurrences (see Table 2 [site and occurrence key]).

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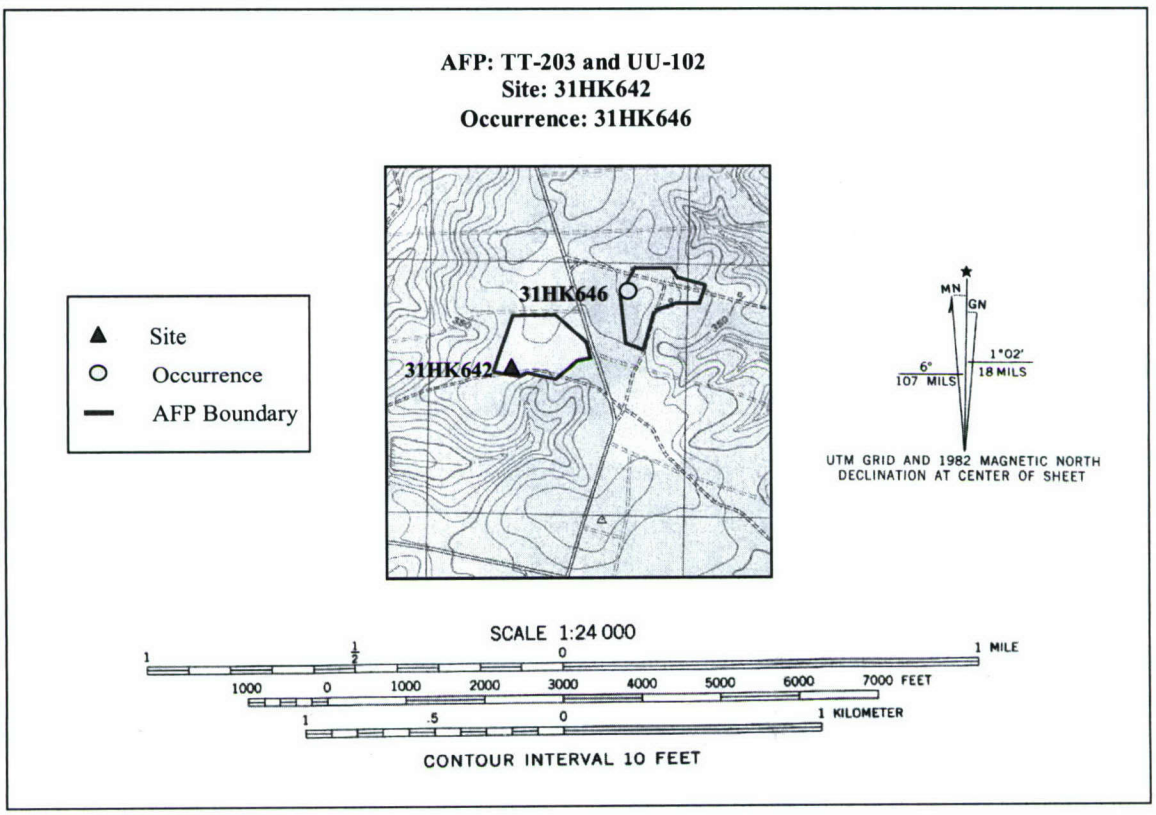

Figure 5. Detail of Nicholson Creek Quadrangle showing locations of 31HK642 and 31HK646. Project area boundaries correlate with Artillery Firing Point (AFP) boundaries.

The Iron Butterfly site (31HK642), a prehistoric Middle-to-Late Woodland period site (with a possible non-diagnostic Archaic period component), was recorded and investigated during the LRAM survey of gun position UU-102 (Figures 5—6). The site is located on the east-to-southeast trending slope of an upland spur at the head of an unnamed tributary of Nicholson Creek. The central area of the site is situated at the top of a long, gradual slope, approximately 80—100 m north of the stream head. One hundred and thirty six prehistoric ceramic sherds, a projectile point, 35 pieces of lithic debitage, and firecracked rock fragments (n=8) were recovered from the surface of the site. Three shovel-test-pits (STP) on a north-south oriented transect were excavated across the center of a pottery concentration exposed on the surface. One unit (STP-1) yielded a single prehistoric sherd, but the remaining STPs were sterile of cultural material. Five additional STPs (STPs 4—8) were excavated within the bounds of the surface scatter in opportunistic site area locations that did not visibly appear to be deflated, eroded or otherwise badly disturbed. Only one unit, STP-6, produced cultural material, a single metavolcanic flake fragment. Four, 10-m interval, radial STPs (STPs 9—12) were excavated in cardinal directions around STP-6, but the radial units produced no additional cultural materials.

Iron Butterfly was revisited in 2000 for follow-up testing after the gun position was burned off and roller chopped in 1999. With improved surface visibility, the site was re-surface collected and three more discrete cultural activity loci were observed and mapped respectively as Loci-A, B, and C (Figure 6).

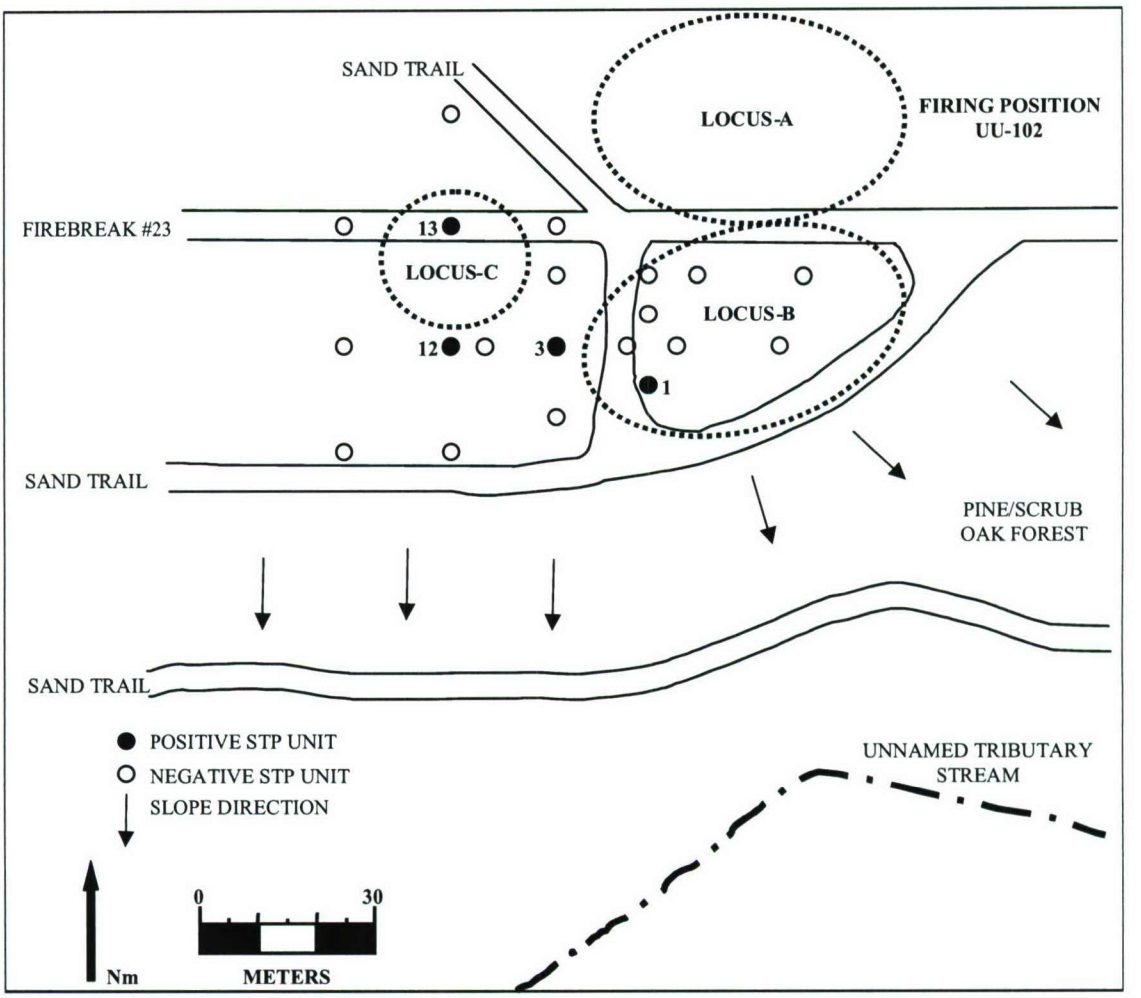

Figure 6. 31HK642 site plan from field sketch map showing approximate shovel test pit (STP) locations and surface artifact distributions (Loci A-C).

Locus-C was found outside of the site boundaries originally defined in 1998 by surface collection and preliminary shovel testing. Accordingly, Locus-C was shovel tested to assess the potential for subsurface deposits. A single STP unit (STP-13) was placed in the center of a small scatter of lithic debitage observed on the sandy road surface of Firebreak #23. Three quartz flakes were recovered from the undisturbed C1/C2-horizon at a depth of 40—55 centimeters-below-surface (cmbs). Four 15-m interval radials (STPs 14—17) were excavated in cardinal directions around STP-13. The south radial unit (STP-16) produced two metavolcanic flakes from 50—60 cmbs while the other cardinal radials were negative. Three additional 15-m interval radials (STPs 18—20) were excavated around STP-16, but all were negative. Due to the extreme soil column deflation at Locus-A, no additional STPs were dug in that particular area.

Although no diagnostic materials from the Archaic period were recovered from the site, Woodland period ceramics were specifically concentrated in the southeast corner of the site (Locus-B), the activity area closest to the adjacent stream. Surface artifacts from the northern portion of the site

(Locus-A) and the western section of the site (Locus-C) are almost exclusively metavolcanic and quartz flakes. The Locus-C surface collected assemblage included a single triangular projectile point, produced from a retouched quartz flake, while Locus-A further yielded a single ceramic sherd. Based on the general absence of ceramics in the artifact assemblages recovered from Loci-A and B, it seems probable that the profusion of metavolcanic debitage recovered from all three loci likely resulted from Archaic period activities on the site. This conclusion is justifiable in that we typically observe, at least in the Eastern Sandhills, a dramatic reduction in the use of metavolcanic lithic material for tool production between the Terminal Archaic/Early Woodland periods and the Middle/Late Woodland periods (Culpepper et al. 2000:36—41 and Figure 5). While an Archaic period component is suggested, Iron Butterfly's topographic situation, the spur or toe of an upland flat, is most reminiscent of other Middle-to-Late Woodland period sites, such as the Middle Toe (31CD750) (Irwin et al. 1998) or 5th Cup (31HK613) (Culpepper et al. 2000) sites, previously investigated on Fort Bragg.

Military activity disturbances and subsequent soil erosion processes have led to an apparent near total surface exposure of the site's archaeological deposits. The artifacts, principally the ceramic sherds, have been subjected to intensive vehicle and foot traffic. The pottery sherds have been crushed and fragmented subsequent to surface exposure through natural soil erosion action in the wake of military activities (e.g., clear cutting, firebase bulldozing, etc.). Although Iron Butterfly yielded 136 prehistoric sherds, the Middle Toe site, for instance, produced only 20 sherds at the Phase I investigation level. The artifact assemblage from the Middle Toe site was, however, from an intact, buried context. Unfortunately, 97% of all cultural materials, both ceramics and lithics, recovered at the Iron Butterfly site are from eroded or disturbed surface exposures and no significant artifacts were recovered from a buried context. Sherds from the recovered ceramic assemblage are generally small and particularly fragmented. Approximately 75% of the sherds are less than 2 cm wide/long; the remainders are generally less than 3 cm wide/long. Sherds from at least two different ceramic series with variable surface treatments and tempering elements are represented in the site's ceramic assemblage (Table 3). Medium sand-tempered sherds (75.7%), with fabric-impressed or plain surface treatments, dominate the overall assemblage, while grog-tempered sherds (24.3%) with fabric-impressed, cord-marked, or plain surface treatments, fall well within the minority. The medium sand-tempered sherds typically include frequent, but randomly distributed, coarse sand inclusions and can be classified as "sand and grit-tempered." The grog-tempered sherds can be further sub-divided into two distinctive varieties: grog only (minor sand) and medium sand with grog.

Table 3. 31HK642 prehistoric ceramic sherds sorted by temper type and exterior surface treatment.

	Plain	**Fabric-Impressed**	**Cord-Marked**	**Indeterminate**	**Totals**
Sand	38 (27.9%)	49 (36%)	-	16 (11.8%)	103 (75.7%)
Grog with Sand	3 (2.2%)	8 (5.9%)	-	-	11 (8.1%)
Sand with Grog	4 (2.9%)	15 (11.1%)	1 (0.7%)	2 (1.5%)	22 (16.2%)
Totals	45 (33%)	72 (53%)	1 (0.7%)	18 (13.3%)	136 (100%)

As only four sherds from two different vessels could be refitted in the entire assemblage, an accurate minimum vessel count for the site cannot be ascertained. Based on the various combinations of temper types and surface treatments observed in the ceramic assemblage, we can safely say that some

portions of at least seven individual vessels are represented in the collection. Grog-tempered or sand and grog-tempered sherds from the site generally fall within the range of variability expected for the Hanover series, while the sand and grit-tempered sherds generally fall within the range of variability expected for the Cape Fear series. The Cape Fear series originated in the southeastern Coastal Plain region's late Early Woodland period, but was most predominant through the first half of the Middle Woodland period. Based on the present sample of Cape Fear series sherds with associated dates, the approximate date range for the Cape Fear series across the Carolinas is 600 B.C. through A.D. 1300, but the 103 sherds in the assemblage are primarily fabric-impressed and tempered with moderate amounts of medium-to-coarse sand, characteristics more generally associated with Middle Woodland period, Cape Fear II ceramics (ca. A.D. 400—800 (Herbert 2002; Herbert et al. 2002).

While both Middle and Late Woodland period radiocarbon and thermoluminescence (TL) dates are now associated with the grog-tempered Hanover series, the sand-tempered with grog variety has been recently classified by Herbert (2000, 2002) as Hanover I. Hanover I dates to the late Middle Woodland and is distinguished from the later Hanover II in that it is "...tempered principally with sand to which a minor amount of finely crushed grog was added" (Herbert 2002:307). Hanover II ceramics date to the Late Woodland period and are "tempered mostly with grog" with only small amounts of sand in the paste (Herbert 2002:307). The general date range for Hanover I in the North Carolina Sandhills is A.D. 200—1000 and the approximate date range for Hanover II is A.D. 1000—1500 (Herbert 2002:297). The assemblage of 33 Hanover series sherds from Iron Butterfly includes both the Middle Woodland (n=31) and Late Woodland (n=2) Hanover phases.

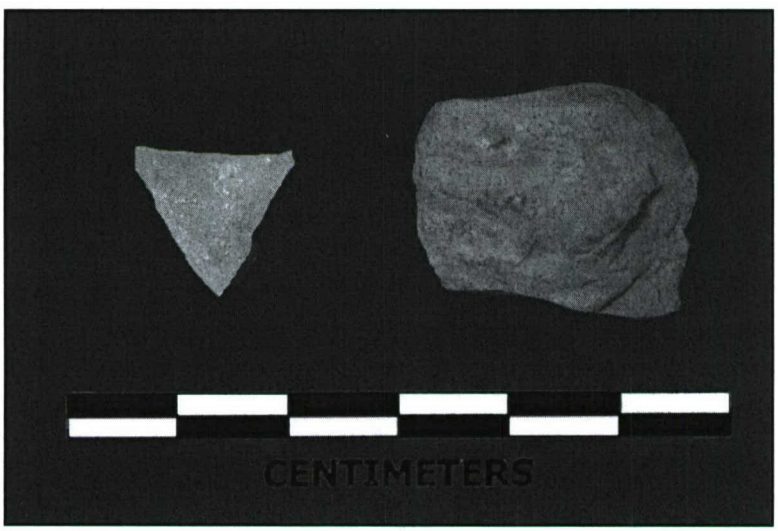

Figure 7. Woodland period triangular projectile point (left) and retouched flake tool (right) recovered from 31HK642.

A single triangular projectile point of semi-translucent quartz was found on the disturbed surface in Locus-C (Figure 7). The point is actually a retouched triangular flake with minimal bifacial thinning on the lateral edges. The base is slightly concave with minor basal thinning. The point form, basal width (15 mm) and length-to-width ratio (1:1) generally fall within the expected range of variation for the Caraway type as originally classified and illustrated in Coe (1964:48). As the point forms an equilateral triangle, with an approximate length of 15 mm, the diminutive specimen most specifically appears to be related to the Roanoke-Clarksville-Hillsboro tradition (Coe 1964:49, 111). While the small Clarksville/Hillsboro type points are generally considered to be associated with Protohistoric period, A.D. 1600—1700, occupations in the Piedmont (Coe 1964:55, 119; Coe 1995:204-206), there are clearly many examples of similar points (i.e., "small Roanoke points") from exclusively prehistoric, Late Woodland

period contexts on the northeastern Coastal Plain (Phelps 1983). Given that the Woodland period ceramic assemblage from Iron Butterfly generally dates between 400 B.C. and A.D. 1500, this point is most likely associated with prehistoric activities on the site. While an Archaic period occupation at 31HK642 cannot be ruled out, chronologically diagnostic materials (i.e., pottery and one projectile point) from the site suggest that human activities at Iron Butterfly were primarily restricted to the Middle and Late Woodland periods.

While no other chronologically diagnostic lithic materials were found, 35 pieces of quartz and metavolcanic debitage, as well as eight small pieces (31.5 g [grams]) of quartzite firecracked rock, were recovered from the site. The majority of the debitage (51.5%) is of an aphyric metavolcanic material. Only one flake is obviously flow banded and all of the material exhibits moderate-to-heavy patination. Other than flake debitage, only one metavolcanic tool, a retouched flake fragment, was recovered (Figure 7). This fragmented tool appears to be a portion of a unifacial tool, perhaps a scraper. Quartz debitage was infrequent at all three surface defined activity loci and accounts for 48.5% of the debitage in the lithic assemblage. Only one crystal quartz flake was recovered and the bulk of the quartz debitage assemblage primarily consists of semi-translucent-to-white quartz that varies in quality, color and crystalline structure. A single bipolar core fragment of crystal "smoky" quartz was found on the surface in Locus-B.

The assemblage of metavolcanic debitage is technologically diverse with primary, early and late-stage reduction flakes represented in the small collection. With the exception of the bi-polar core fragment and two pieces of core shatter, the entire quartz debitage assemblage is comprised of late-stage reduction flakes or probable late reduction flake fragments. The overall variability in the site's lithic material assemblage is generally indicative of multiple tool reduction episodes with differential materials. Based on the comparatively low frequency of primary and early reduction debitage, the overall lithic assemblage suggests on-site tool-making from cores or blanks that were initially reduced or otherwise prepared off-site. Metric and technological characteristics of the site's lithic assemblage are summarized in Tables 4 and 5. The suggested pattern of late-stage tool reduction activities at Iron Butterfly parallels the tool-making strategy observed at the Woodland period Middle Toe site (Irwin et al. 1998).

The general area of Iron Butterfly shows extensive evidence of major subsurface disturbance and upper soil column mixing/homogenization from previous military activities related to repeated training events on gun position UU-102. The initial testing revealed soils in the few apparently undisturbed portions of the site that are generally representative of the Lakeland Series. The soil profiles in these relatively undisturbed site areas consist of dark gray sandy humus that overlies a C1-horizon of yellowish brown sand. The C2-horizon is strong brown clayey sand. The average depth of the A-horizon is only 10 cm, while the C2-horizon is evident between 55 and 75 cmbs, where soil columns appear relatively undisturbed. Artifacts from the site's four positive STPs were recovered from C1/C2-horizon soils, approximately 30—60 cmbs, in relatively undisturbed areas. Overall, subsurface testing results indicated that the much of the site has been destroyed, but isolated areas with intact soil stratigraphy exist on the periphery.

Table 4. 31HK642 lithic tools and debitage classes sorted by raw material type.

	Projectile Point	Retouched Flake Tool	Bipolar Core	Primary Reduction Flake	Early Reduction Flake	Late Reduction Flake	Flake Fragment	Core Shatter	Totals
Metavolcanic	-	1 (2.8%)	-	1 (2.8%)	2 (5.6%)	8 (22.1%)	6 (16.7%)	-	18 (50%)
Quartz	1 (2.8%)	-	1 (2.8%)	-	-	12 (33.2%)	2 (5.6%)	2 (5.6%)	18 (50%)
Totals	1 (2.8%)	1 (2.8%)	1 (2.8%)	1 (2.8%)	2 (5.6%)	20 (55.3%)	8 (22.3%)	2 (5.6%)	36 (100%)

Table 5. 31HK642 lithic debitage classes sorted by size categories.*

	≤ 1 cm	> 1 ≤ 2 cm	> 2 ≤ 3 cm	> 3 ≤ 4 cm	> 4 ≤ 5 cm	Totals
Metavolcanic	1 (3.0%)	9 (27.3%)	6 (18.2%)	-	1 (3.0%)	17 (51.5%)
Quartz	3 (9.1%)	7 (21.2%)	5 (15.2%)	-	1 (3.0%)	16 (48.5%)
Totals	4 (12.1%)	16 (48.5%)	11 (33.4%)	-	2 (6.0%)	33 (100%)

*Does not include tools (e.g., projectile point, retouched flake) cores or firecracked rock.

Eight of the twenty total excavated STPs demonstrated heavily disturbed or deflated A and C1-horizon soils with subsurface disturbances ranging from 30—80 cmbs. Much of the site, while covered with grasses and patchy scrub vegetation, is badly eroded with areas of near 100% surface exposure of mixed C1/C2-horizon sands. Numerous sand trails and refilled fighting positions cover the entire gun position. Although ceramic sherds were abundant on the exposed surface areas of the site, 95% of the STPs produced no additional vessel fragments. Due to soil erosion, exacerbated by clear cutting and earlier military excavations, C1-horizon soil strata at the site—generally associated with Holocene occupations on Lakeland soil formations at Fort Bragg (Irwin et al. 1998)—are now largely deflated or homogenized with deeper C2/C3-horizon, Pleistocene era, soil strata. As such, it appears that the site's artifact bearing (i.e., Archaic and Woodland period) soil strata are now at or near the present surface. Given the general surface context and the readily apparent subsurface disturbance of the site, it is clear that previous military activities (e.g., tracked vehicle traffic, mechanical excavations and earthmoving, etc.) have negatively impacted both the integrity of the site's natural soil stratigraphy and cultural deposits. Based on the conspicuous degree of soil erosion and subsurface disturbance at 31HK642, no additional subsurface testing was undertaken. The Iron Butterfly site (31HK642) is considered destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK643

Summary Data

Site Number: 31HK643
Site Name: Grasshopper
Cultural Component(s): Middle Woodland
County: Hoke
USGS 7.5' Quadrangle: Nicholson Creek
UTM (NAD-27): Easting—0667548 Northing—3879804
Landform: Upland slope
Elevation (Feet AMSL): 345
Slope Percent: 1-2
Slope Face: N
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Candor sand
Nearest Water (Meters): 125
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category V
Surface Visibility (Time of Survey): 50-100%
Surface Collected Artifacts: Yes
Positive STPs: 1
Negative STPs: 8
Approximate Site Size (Meters^2): 2100
Observed Disturbance(s): Roads and trails, clear cutting, erosion and military excavations

The Grasshopper site (31HK643), a prehistoric Middle Woodland period activity area, was recorded and investigated during the LRAM survey of gun position TT-205 (Figures 8—9). The site is located on the north trending slope of an upland ridgeline at the head of an unnamed tributary of McDuffie Creek. The central area of the site is situated approximately 125 m southeast of the stream head. Initially, four prehistoric ceramic sherds, but no other cultural materials, were recovered from the surface of the site. A central STP and four 15-m interval radials, positioned in cardinal directions, were excavated at the surface occurrence area. The central STP produced a single quartz flake, but all four radials were negative.

Grasshopper, originally recorded as an occurrence, was revisited for follow-up testing after the gun position was burned off in 1999. With improved surface visibility, the site was re-surface collected and a number of artifacts were observed on the periphery of the original occurrence area that was initially recorded as a 20-x-20-m surface distribution. Accordingly, the site boundaries were expanded and additional shovel testing was undertaken (Figure 9). Four 15-m interval STPs, oriented along an east-west transect that paralleled a sand road on the south side of the site, were excavated. The transect was positioned to bisect the long axis of the "revisit" artifact distribution. While the soil column in the immediate vicinity of the earlier occurrence testing was found to be only moderately disturbed (from 0—25 cmbs), the new transect STP soil profiles were found to be heavily disturbed in two of the STPs (from 55—95 cmbs) and no additional subsurface artifacts were recovered.

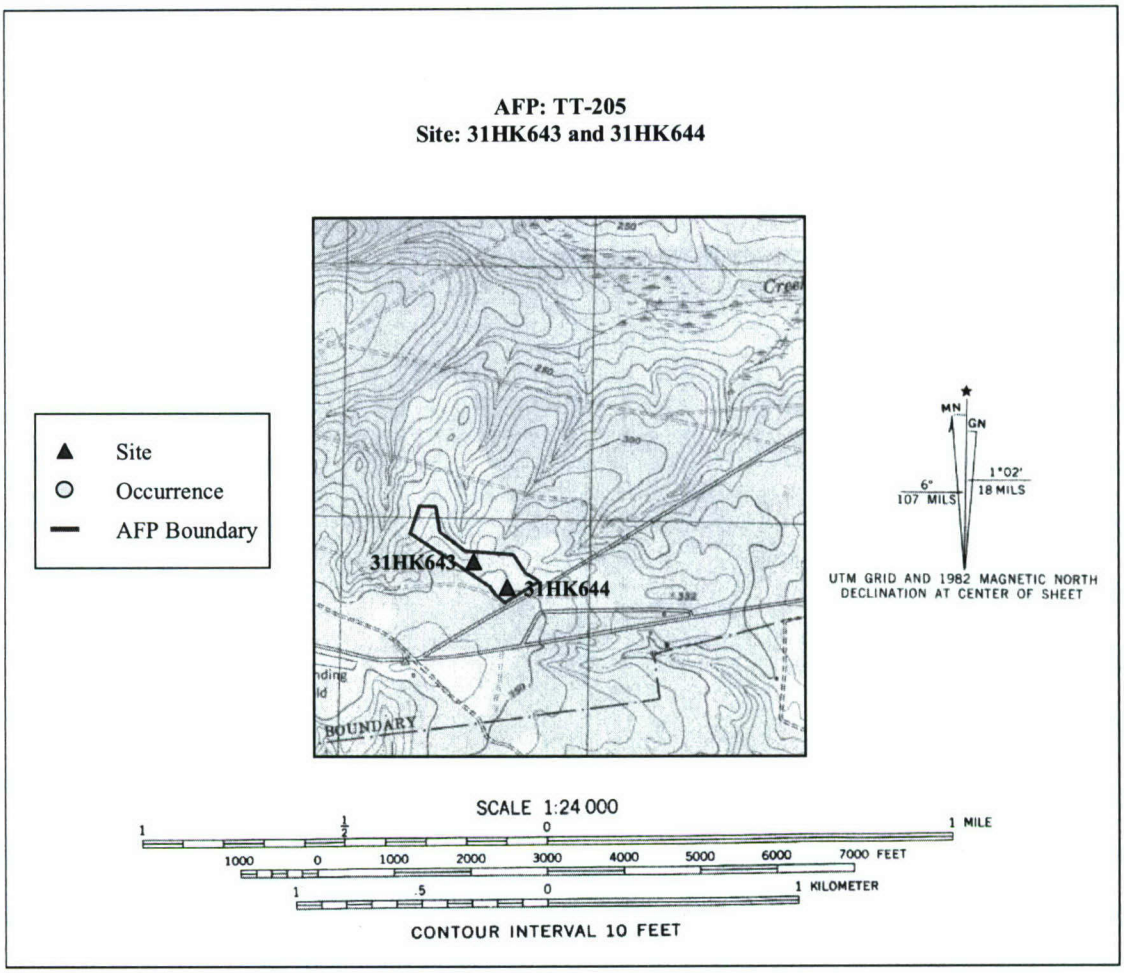

Figure 8. Detail of Nicholson Creek Quadrangle showing locations of 31HK643 and 31HK644. Project area boundaries correlate with Artillery Firing Point (AFP) boundaries.

Although only eight prehistoric sherds were found, it appears that at least two ceramic series are represented in the site's artifact assemblage. One sherd is tempered with sand and the remaining seven sherds are all tempered with medium sand and grog. The single coarse sand-tempered sherd originated from a plain vessel, while the seven medium sand and grog-tempered sherds all originated from two or more fabric-impressed vessels. The exclusively sand-tempered sherd falls within the range of variability expected for the Cape Fear series while the sand and grog tempered sherds fall within the range of variability expected for the Hanover series. The Cape Fear series originated in the southeastern Coastal Plain region's late Early Woodland period, but was most predominant through the first half of the Middle Woodland period. Based on Cape Fear series sherds with associated dates, the approximate date range for the Cape Fear series in the Carolinas is 600 B.C. through A.D. 1300 (Herbert 2002; Herbert et al.2002). Although the plain finished sherd is too small for definitive identification, it appears similar to other Early/Middle Woodland period, Cape Fear I/II phase materials recovered on Fort Bragg.

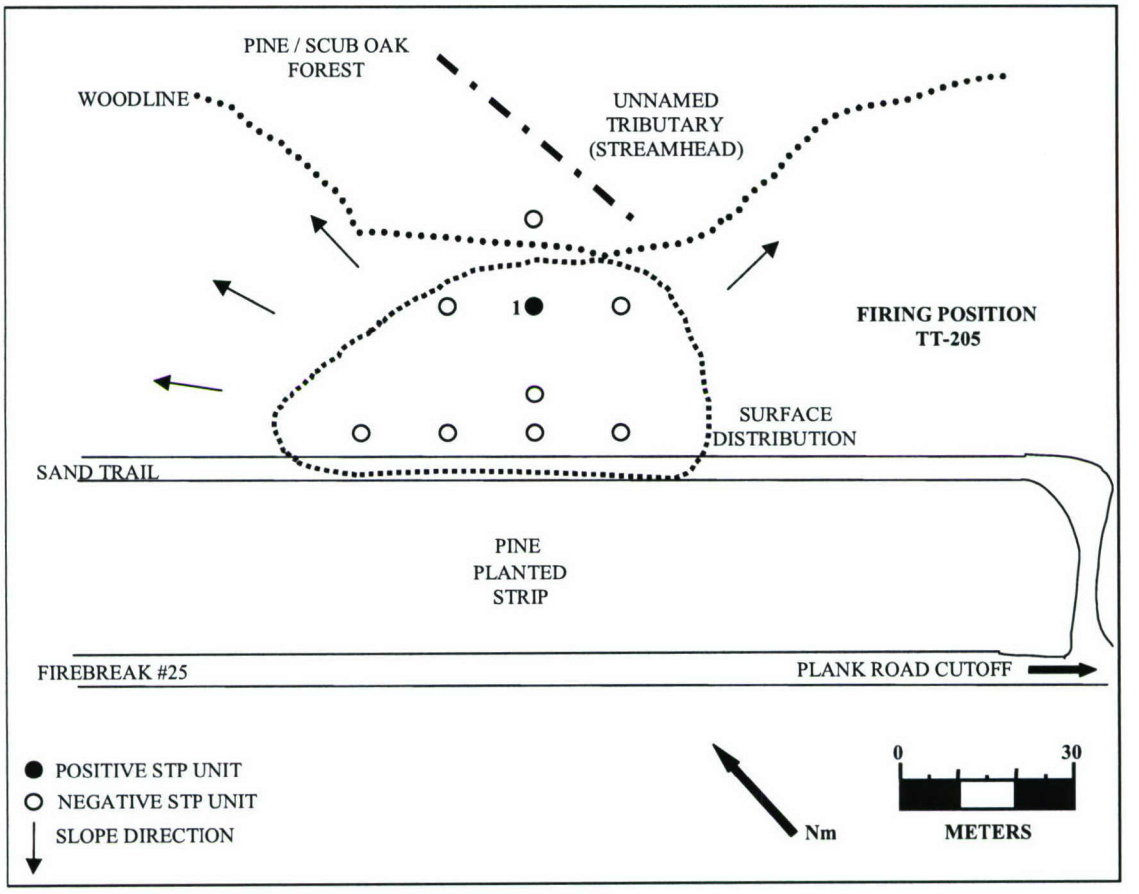

Figure 9. 31HK643 site plan from field sketch map showing approximate shovel test pit (STP) locations and surface artifact distribution.

Grog-tempered or sand and grog-tempered sherds from the site generally fall within the range of variability expected for the Hanover series and are best classified as the Hanover I variety, which date to the late Middle Woodland period (Herbert 2002). The general date range for Hanover I in the North Carolina Sandhills is A.D. 200—1000 (Herbert 2002:297). While the single Cape Fear series sherd suggests the possibility of an Early Woodland period occupation at 31HK643, the majority of the chronologically diagnostic materials from the site indicate that human activities were primarily restricted to the later Middle Woodland period.

During the initial survey, only one flake was recovered on the site, but the revisit surface collection produced an interesting array of presumably Woodland period tools and a limited amount of debitage or firecracked rock. Two quartzite mano/polisher/hammerstones were found along the south side of the site (Figure 10). Both multi-functional pieces, ovoid in form, are modified river cobbles that are worn on all surfaces. The smallest tool is both side and end-battered and scarred from use as a pecking/hammerstone. Minor pitting on one face further suggests that the tool was used as an anvil for bipolar reduction (see Chapman 1975:162—163). The larger specimen has a broad concave pit on one side and minor pecking scars on one end. Both expedient tools are extensively edge abraded, probably from food processing use (see Chapman 1975:164), and the faces are well-smoothed from abrasion. One

quartz core flake blank was found unifacially retouched along one edge and the tool, a side scraper, is made of a milky-to-semi-translucent material (Figure 11).

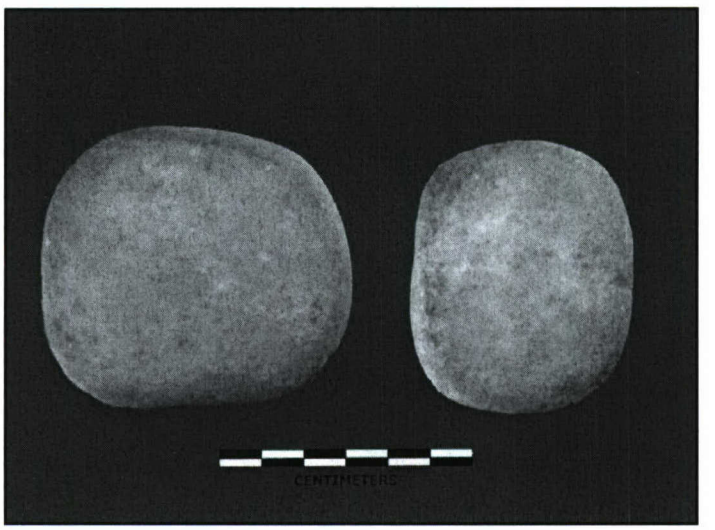

Figure 10. Two Multi-functional percussion/polishing/grinding tools recovered from 31HK643.

Figure 11. Retouched flake side scraper recovered from 31HK643.

Other than two large quartz cores and a single early reduction quartz flake, all made of semi-translucent-to-white quartz, no other debitage was found on the site. The debitage suggests on-site tool-making from cores that were apparently reduced or otherwise prepared off-site. In the absence of chronologically diagnostic stone tools, it is assumed that the site's lithic assemblage is related to Woodland period occupation(s) associated with the recovered pottery sherds. The cobble tools are typical multi-functional objects that are often associated with wood, stone or bone tool production (Adams 2002:78 and 91), as well as food processing (Chapman 1975:164). The technological characteristics of the site's lithic assemblage are summarized in Table 6. While the artifact deposits are not spatially contiguous, prehistoric activities at 31HK643 may be related to the Wild Iris site (31HK644) recorded

during the survey of TT-205. Wild Iris, a surface scatter of quartz debitage, is located approximately 300-m east-southeast of Grasshopper.

Table 6. 31HK643 lithic tools and debitage classes sorted by raw material type.

	Polisher/ Hammerstone	Retouched Flake	Freehand Core	Early Reduction Flake	Totals
Quartz	-	1 (16.7%)	2 (33.3%)	1 (16.7%)	4 (66.7%)
Quartzite	2 (33.3%)	-	-	-	2 (33.3%)
Totals	2 (33.3%)	1 (16.7%)	2 (33.3%)	1 (16.7%)	6 (100%)

The general area of the Grasshopper site shows evidence of moderate subsurface disturbance and upper soil column mixing/homogenization from previous military activities related to training events that have occurred on gun position TT-205. Much of the site locale, while covered with various grasses and patchy scrub vegetation, is badly eroded with areas of near 100% surface exposure of Bt-horizon loamy sands. Numerous sand trails and refilled fighting positions cover the entire gun position. Although a few ceramic sherds were recovered in exposed surface areas of the site, the excavated STPs produced no additional vessel fragments. Soils in the undisturbed areas of the site are generally representative of the Candor Series. The site's intact soil profile consists of dark grayish brown sand overlying an E-horizon of yellowish brown sand. The Bt-horizon is yellowish brown loamy sand that is apparent at approximately 65—75 cmbs. The water table in this locale was unusually high at the time of the initial survey and was readily visible at 70 cmbs. All STPs minimally exhibited disturbed, homogenized A/E-horizon soils to a depth of 23—30 cmbs and several units were disturbed between 54 and 95 cmbs.

Given the surface context and the apparent subsurface disturbance of the site, it is clear that previous military activities (e.g., tracked vehicle traffic, mechanical excavations and earthmoving, etc.) have negatively impacted both the integrity of the site's natural soil stratigraphy and cultural deposits. Based on the negative subsurface testing data and the relative degree of subsurface disturbance at 31HK643, no additional subsurface testing was undertaken. The Grasshopper site (31HK643) is considered destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK644

Summary Data

Site Number: 31HK644
Site Name: Wild Iris
Cultural Component(s): Prehistoric
County: Hoke
USGS 7.5' Quadrangle: Nicholson Creek
UTM (NAD-27): Easting—0667670 Northing—3879715
Landform: Upland slope
Elevation (Feet AMSL): 350
Slope Percent: 1-2
Slope Face: N-NE
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Candor sand
Nearest Water (Meters): 225
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category V/VI
Surface Visibility (Time of Survey): 50-100%
Surface Collected Artifacts: Yes
Positive STPs: 0
Negative STPs: 5
Approximate Site Size (Meters^2): 150
Observed Disturbance(s): Clear cutting, erosion and military excavations

The prehistoric Wild Iris site was recorded and investigated during the LRAM survey of gun position TT-205 (Figures 8 and 12). The site is located on the north-to-northeast trending slope of an upland ridgeline at the head of an unnamed tributary of McDuffie Creek. The central area of the site is situated at the top of a gradual slope, approximately 225 m southeast of the stream head. An early-stage quartz biface fragment, ten pieces of lithic debitage and firecracked quartzite (n=1) were recovered from the surface of the site. Five STPs in a 15-m interval cruciform pattern were excavated at the center of the surface distribution. All five STPs were sterile of prehistoric cultural materials.

Five quartz late reduction flakes, two quartz flake fragments and three pieces of quartz shatter, two of which have weathered cortex, were found. The quartz material is variable in terms of crystalline structure, quality and color, with semi-translucent-to-white and higher quality milky quartz varieties represented in the assemblage. This heterogeneous lithic scatter is suggestive of multiple reduction episodes with differential quartz materials. The metric and technological characteristics of the site's lithic assemblage are summarized in Tables 7 and 8. The recovered lithic materials suggest some limited prehistoric tool manufacturing activity in the area, but no temporally diagnostic artifacts were recovered. The presence of corticated core shatter suggests some on-site tool-making from cobbles or nodules that were imported to the site. Materials recovered from this spatially discrete, 20-x-25-m, site may be related to the lithic debitage and Woodland period ceramics recovered from the Grasshopper site (31HK643), which was, recorded approximately 300 m to the west-northwest.

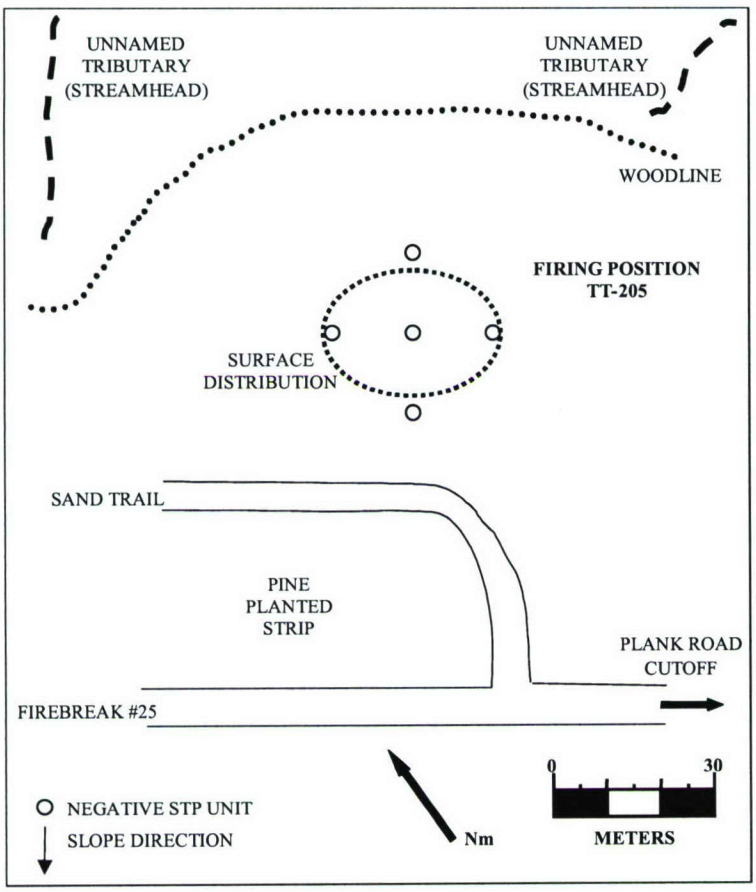

Figure 12. 31HK644 site plan from field sketch map showing approximate shovel test pit (STP) locations and surface artifact distribution.

Table 7. 31HK644 lithic tools and debitage classes sorted by raw material type.

	Early Stage Biface (Fragment)	Late Reduction Flake	Flake Fragment	Core Shatter	Totals
Quartz	1 (9.1%)	5 (45.4%)	2 (18.2%)	3 (27.3%)	11 (100%)

Table 8. 31HK644 lithic debitage classes sorted by size categories.*

	≤1 cm	>1≤2 cm	>2≤3 cm	>3≤4 cm	>4≤5 cm	Totals
Quartz	-	7 (70.0%	3 (30.0%)	-	-	10 (100%)

*Does not include biface or firecracked rock.

Soils in the undisturbed areas of the site are generally representative of the Candor Series. The site's intact soil profile consists of dark grayish brown, sandy humus, overlying an E-horizon of yellowish brown sand. The Bt-horizon is yellowish brown loamy or clayey sand. Where apparently undisturbed, the average depth of the A-horizon is 10 cm, while the Bt-horizon is generally evident between 35—60

cmbs. Four of the five STPs exhibited subsurface disturbances that ranged from 25—55 cmbs. The specific locale of the site shows surficial evidence of subsurface disturbance from previous military training activities. The area is generally disturbed or deflated with 75%+ surface exposure of clayey Bt-horizon soils. The site actually sits in the center of a large, shallow depression that appears to be a former Command Post Bunker or some other type of military excavation that has been repeatedly excavated and refilled. Based on the degree of surficial erosion and evidence of extensive military excavations, no further subsurface testing was undertaken. The Wild Iris site (31HK644) is considered destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK649

Summary Data

Site Number: 31HK649
Site Name: Mill Bend
Cultural Component(s): Late Woodland
County: Hoke
USGS 7.5' Quadrangle: Lobelia
UTM (NAD-27): Easting—066420 Northing—3892105
Landform: Upland Spur Slope
Elevation (Feet AMSL): 280
Slope Percent: 4-5
Slope Face: N-NE
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Lakeland sand
Nearest Water (Meters): 20
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category V/VI
Surface Visibility (Time of Survey): 50-75%
Surface Collected Artifacts: Yes
Positive STPs: 3
Negative STPs: 7
Approximate Site Size (Meters^2): 390
Observed Disturbance(s): Roads and trails, clear cutting, erosion and military excavations

The Late Woodland period Millbend site (31HK649), recorded and investigated during the Operation Purple Dragon survey, is located on the north-to-northeast trending slope of an upland spur just below the headwaters of an unnamed tributary of Mill Creek (Figures 13—14). The central area of the site is situated on the long gradual slope of the spur, approximately 40 m south of the stream. The surface artifact distribution extended down into the floodplain, within 15 m of the creek bottom. The site was initially surface collected in January of 1998 and temporarily protected from ground disturbing military activities until the site was revisited and shovel tested in February of 1999. One hundred and twenty-four prehistoric ceramic sherds, a projectile point, 96 pieces of lithic debitage, and a large firecracked rock fragment were recovered from the site. Ten STPs, oriented in a 5-m interval cruciform pattern, were

excavated across the center of a pottery and lithic concentration exposed on the surface of a sand trail that bisects the site.

One unit (STP-0 [center]) yielded two prehistoric sherds and two peripheral units produced quartz debitage from relatively undisturbed soil strata, but the remaining seven STP units were sterile of subsurface cultural materials— two "positive" radial units (STP-N1 and E3) included surface finds, but no subsurface materials. Like the Iron Butterfly site (31HK642), described in this section, Millbend's topographic situation, the spur or toe of an upland flat, is reminiscent of other Middle-to-Late Woodland period sites previously investigated on Fort Bragg (Irwin et al. 1998). Unfortunately, the site has been largely destroyed, and much like the situation at Iron Butterfly, 99% of all cultural materials from Millbend were recovered from eroded or badly disturbed surface exposures with few significant artifacts from buried contexts. Sherds from the recovered ceramic assemblage are generally small and rather fragmented. Approximately 83% of the sherds are less than 2 cm wide/long and the remainders are generally less than 3-to-4-cm wide/long.

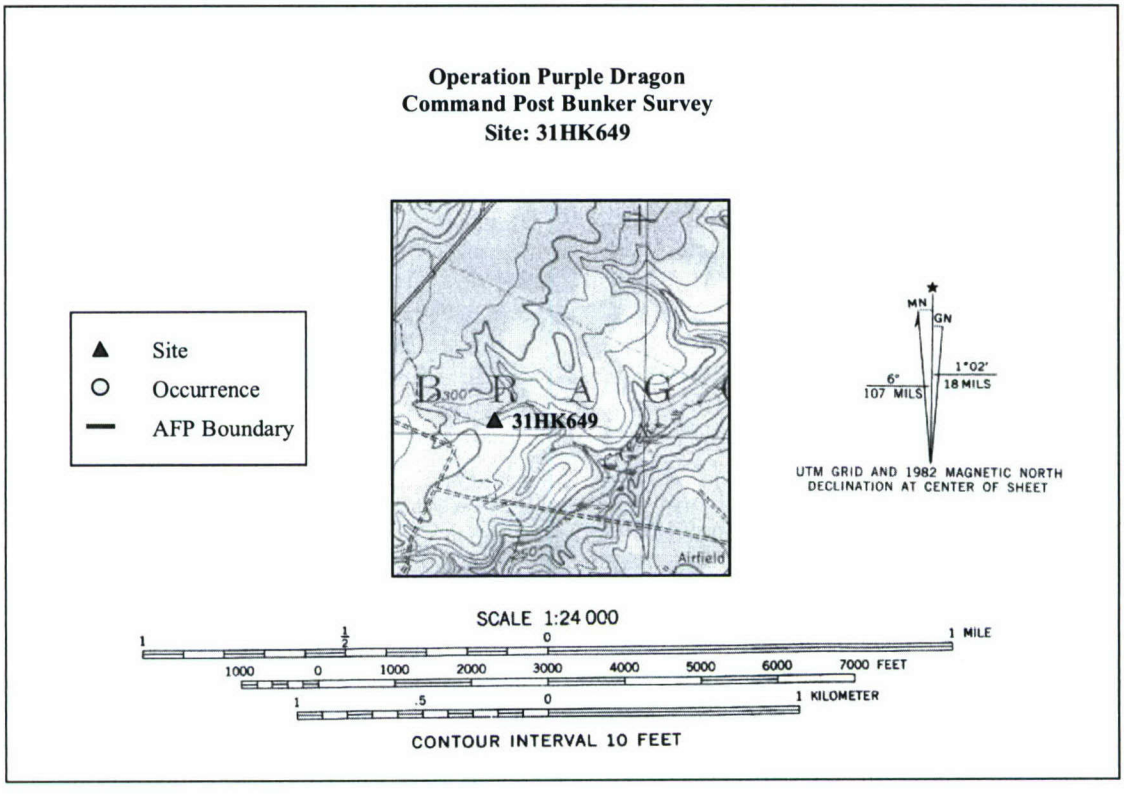

Figure 13. Detail of Lobelia Quadrangle showing location of 31HK649.

Military disturbance and subsequent soil erosion processes have led to an apparent near total surface exposure of the site's archaeological deposits—the natural soil column on the site is badly deflated in most areas. The artifacts, principally the ceramics, have been subjected to intensive vehicle and foot traffic. Such materials were crushed and fragmented after exposure through natural soil erosion action in the wake of military activities (e.g., clear cutting, road construction, etc.). All of the recovered ceramic

sherds (n=124) are fabric-impressed and are tempered with grog and minor amounts of sand. As the majority of the sherds are "residual" fragments that are less than 2 cm wide/long, an accurate minimum vessel count for the site cannot be adequately addressed. Based on the observed variations in the fabric impressions noted in the in the ceramic assemblage, however, it appears that some portions of several individual vessels are represented in the collection. These grog-tempered sherds generally fall within the range of variability expected for the Hanover series in the Sandhills region (Herbert 2000, 2002). All 124 Hanover series sherds from Millbend appear, as best we can assess given such a fragmented collection, to be tempered mostly with grog and small amounts of sand. As such, the materials are best classified as the Late Woodland period, Hanover II variety (Herbert 2002:307). Radiocarbon and TL dates associated with Hanover II generally fall between A.D. 1000—1500 (Herbert 2002:297).

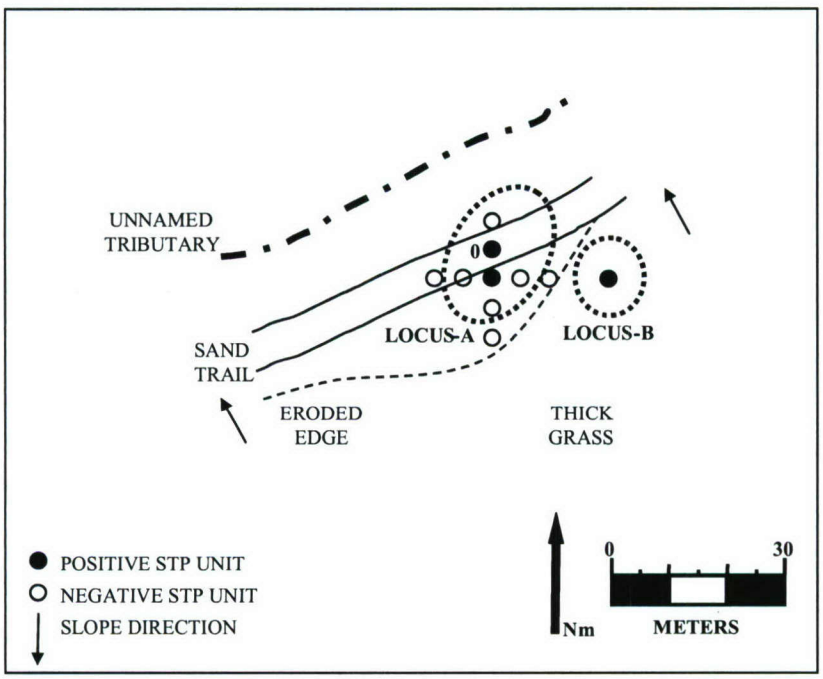

Figure 14. 31HK649 site plan from field sketch map showing approximate shovel test pit (STP) locations and surface artifact distribution.

A single triangular projectile point (*sans* tip) of semi-translucent/near crystal quartz was found on the disturbed shoulder of the sand road that parallels the creek (Figure 15). The point form and basal width (23 mm) generally fall within the expected range of variation for the Yadkin type as originally classified and illustrated in Coe (1964:47). The broken point is generally well made with a slightly asymmetrical, concave, thinned base. While Coe (1964) originally suggested a late Middle Woodland through middle Late Woodland period date range of A.D. 500—1300 for Yadkin series pottery found in association with Yadkin type projectile points, the few radiocarbon dates presently associated with the Yadkin series from North and South Carolina sites suggest a distinctly Early and early Middle Woodland period date range (ca. 1000 B.C—A.D. 200 [one-sigma]) for Yadkin series ceramics (Eastman 1994; Herbert 2002) in the Carolina Piedmont. The chronological and contextual correlations between Yadkin type points and Yadkin series ceramics are, however, unclear. Given that the ceramic assemblage from Millbend generally dates to the A.D. 900—1500 range, this point is most likely associated with Late Woodland period activities on the site. The site's chronologically diagnostic materials (i.e., pottery and one projectile point) all suggest that human occupations at Millbend were primarily restricted to the Late Hanover Phase (i.e., Late Woodland period).

Figure 15. Triangular projectile point from 31HK649.

While no other chronologically diagnostic lithic materials were found, 93 pieces of quartz debitage, three metavolcanic flakes and one large piece of quartzite firecracked rock (200 g), were recovered from the site. The assemblage of quartz debitage is technologically diverse with primary, early and late-stage reduction flakes represented in the collection. The quartz materials, primarily variations of semi-translucent-to-white or opaque smoky varieties, are diverse in terms of crystalline structure, color and quality. A low frequency of particularly fine milky quartz (4.3%) and crystal quartz flakes (1%) are also represented in the assemblage. With the exception of a few primary reduction flakes (2%) from river cobbles and 24 blocky shatter pieces (25%), the quartz debitage assemblage is primarily comprised of early (7.5%) and late (36.5%) stage reduction flakes or probable late or early-stage reduction flake fragments (29%). Three heavily weathered metavolcanic late reduction flakes were recovered from the road surface area of the site. Metric and technological characteristics of the site's lithic assemblage are summarized in Tables 9 and 10.

Table 9. 31HK649 lithic tools and debitage classes sorted by raw material type.

Material Type	**Projectile Point**	**Primary Reduction Flake**	**Early Reduction Flake**	**Late Reduction Flake**	**Flake Fragment**	**Core Shatter**	**Totals**
Metavolcanic	-	-	-	2 (2.1%)	1 (1.0%)	-	3 (3.1%)
Quartz	1 (1.0%)	2 (2.1%)	7 (7.2%)	34 (35.1%)	26 (26.8%)	24 (24.7%)	94 (96.9%)
Totals	1 (1.0%)	2 (2.1%)	7 (7.2%)	36 (37.2%)	27 (27.8%)	24 (24.7%)	97 (100%)

The overall variability in the site's lithic material assemblage is likely indicative of multiple tool reduction episodes with differential materials. The presence of large quartz shatter and corticated primary reduction flakes from cobbles, while of comparatively low frequency, suggests that on-site tool-making was accomplished through the use of a range of material types that probably included large nodules of vein quartz and river cobbles. This strategy contrasts to the pattern observed on the Iron Butterfly

(31HK642), Middle Toe (31CD750) or Red Rooster sites (31CD475) (Irwin et al. 1998; Irwin and Moore 2004) sites where the recovered lithic assemblage characteristics suggest that tool making was accomplished through the use of prepared cores or blanks that were reduced or otherwise prepared off-site.

Table 10. 31HK649 lithic debitage classes sorted by size categories.*

Material Type	≤ 1 cm	> 1 ≤ 2 cm	> 2 ≤ 3 cm	> 3 ≤ 4 cm	> 4 ≤ 5 cm	> 5 ≤ 6 cm	> 6 ≤ 7 cm	Totals
Metavolcanic	1 (1.0%)	2 (2.1%)	-	-	-	-	-	3 (3.1%)
Quartz	29 (30.2%)	50 (52.1%)	13 (13.6%)	-	-	-	1 (1.0%)	93 (96.9%)
Totals	30 (31.2%)	52 (54.2%)	13 (13.6%)	-	-	-	1 (1.0%)	96 (100%)

*Does not include projectile point or firecracked rock.

With the exception of the sand road and road shoulder areas, the general site location of Millbend shows little evidence of deep subsurface disturbance or upper soil column mixing/homogenization from previous military activities. Soils in the undisturbed portions of the site are generally representative of the Lakeland Series. The soil profiles generally consist of dark gray sand that overlies a C1-horizon of pale brown sand. The C2-horizon is brownish yellow sand with alternating layers of very pale brown sand. Where undisturbed, the depth of the A-horizon ranges from 8—14 cmbs, while the C2-horizon is generally evident at 75—110 cmbs. Artifacts from the site's three positive STPs were recovered from the A-horizon stratum, approximately 1—14 cmbs. Subsurface testing indicated that the central area of the site was largely destroyed from road building or military training activities, but that the periphery of the site, as defined by surface and subsurface testing, is intact, particularly on the south side of the sand road that crosses the site.

Despite these observations, it appears that much of the site's artifact bearing (i.e., Woodland period) soil stratum is now at or near the present surface. Regardless of the lack of evidence for deep subsurface disturbance off the shoulder of the sand road, the surface context of the recovered artifact assemblage suggests that significant erosion, stimulated by past clear cutting, military training and road building activities, has negatively impacted the integrity of the site's cultural deposits. Based on the near total lack of intact subsurface archaeological deposits at 31HK649, no additional subsurface testing was undertaken. The Millbend site (31HK649) is considered destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK668

Summary Data

Site Number: 31HK668
Site Name: Quartz Rubble
Cultural Component(s): Prehistoric
County: Hoke
USGS 7.5' Quadrangle: McCain
UTM (NAD-27): Easting—0653990 Northing—3882545
Landform: Upland Slope
Elevation (Feet AMSL): 375
Slope Percent: 2-3
Slope Face: N-NE
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Lakeland sand
Nearest Water (Meters): 200
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category VI
Surface Visibility (Time of Survey): 90-100%
Surface Collected Artifacts: Yes
Positive STPs: 0
Negative STPs: 0
Approximate Site Size (Meters^2): 2500
Observed Disturbance(s): Roads and trails, clear cutting, erosion and military excavations

The prehistoric Quartz Rubble site was recorded and investigated during the LRAM survey of gun position EE-204 (Figure 16). The site is located on the north-northeasterly slope of an upland flat, approximately 200 m east of an unnamed tributary of Gum Branch. A substantial assemblage of quartz debitage was recovered from the surface of this site in a 50 m^2 area. While the lithic assemblage is heterogeneous in terms of the quartz varieties represented, the greatest proportion of the debitage (97%) is of low quality semi-translucent-to-white quartz. Since few late-stage reduction flakes were recovered from the site, the lithic assemblage is only indicative of limited, early-stage tool manufacturing activity in the area. No temporally diagnostic artifacts were recovered.

The artifact assemblage, given the number of debitage pieces recovered, is somewhat unusual in that no identifiable tools at any production stage, diagnostic or otherwise, were recovered. Materials recovered from this spatially discrete site may possibly be related to the Cherry Patch occurrence (31HK667) that was observed approximately 200 m to the east. Unfortunately, no chronologically diagnostic materials were recovered from these two potentially related sites. While seven positively identifiable reduction flakes were found at the Quartz Rubble site, the bulk of the material is rather nondescript, low quality quartz shatter. Similar concentrations of rough quartz materials have been recorded at other presumably prehistoric surface sites on Fort Bragg. Artifact assemblages from the Cobble Hill (31CD781) and the Funky Quartz (no NCOSA site number assigned) sites both contain materials similar to those recovered from the Quartz Rubble site. The metric and technological characteristics of the site's lithic assemblage are summarized in Tables 11 and 12. While we originally

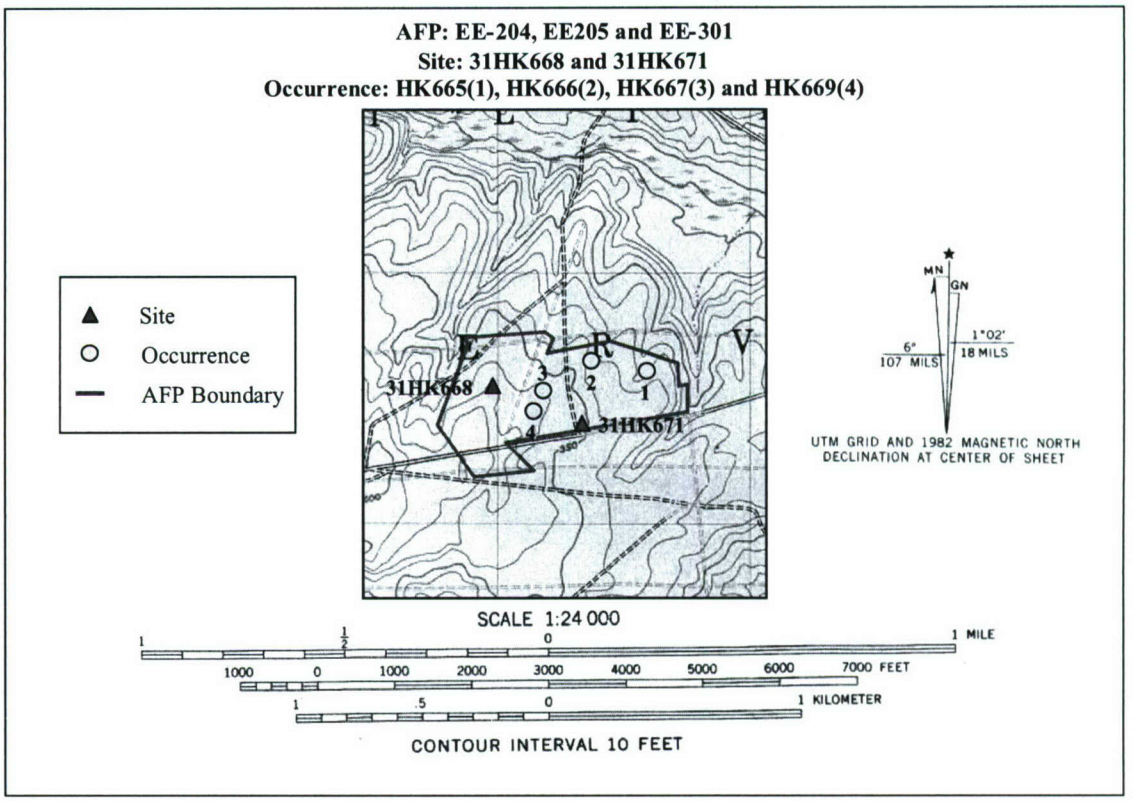

Figure 16. Detail of McCain Quadrangle showing locations of 31HK668 and 31HK671. Project area boundaries correlate with Artillery Firing Point (AFP) boundaries.

assumed that these three sites were prehistoric activity areas, several shatter fragments from the Funky Quartz site have yellow paint residue on one or more surfaces. Although the paint may have been accidentally introduced through recent military activities on the site, the actual lithic deposits may simply be the result of historic period activities in the post-1918 period. Quartz shatter from Fort Bragg sites, in the absence of diagnostic artifacts or definitively identifiable reduction flakes or tools, is a problematic issue that requires further critical evaluation.

Table 11. 31HK668 lithic tools and debitage classes sorted by raw material type.

Material Type	**Early Reduction Flake**	**Late Reduction Flake**	**Flake Fragment**	**Core Shatter**	**Tested Cobble**	**Unmodified Cobble**	**Totals**
Quartz	4 (4.9%)	3 (3.7%)	15 (18.3%)	58 (70.7%)	1 (1.2%)	1 (1.2%)	82 (100%)

Given the presence of the reduction flakes, in close spatial association with the core shatter, we assume that all of the recovered lithic materials from the Quartz Rubble site represent a discrete locus of prehistoric tool-making activity focused on freehand core reduction. The ubiquity of low quality core shatter, in general, is usually indicative of the core reduction process (Sullivan and Rozen 1985). The low

frequency of formal flakes possibly indicates that the toolmakers roughly reduced tool blanks at the site for later reduction and use at another location.

Table 12. 31HK668 lithic debitage classes sorted by size categories.*

Material Type	≤ 1 cm	> 1 ≤ 2 cm	> 2 ≤ 3 cm	> 3 ≤ 4 cm	> 4 ≤ 5 cm	> 5 ≤ 6 cm	Totals
Quartz	17 (21.2%)	33 (41.3%)	14 (17.5%)	8 (10.0%)	4 (5.0%)	4 (5.0%)	80 (100%)

*Does not include tested cobble, unmodified cobble or firecracked rock.

The general area of the Quartz Rubble site shows extensive evidence of subsurface disturbance from previous military training activities. Soils on the site are generally representative of the Lakeland Series, but are completely deflated and/or disturbed. The site is badly eroded with 90%+ surface exposure of sandy-to-clayey sand C2/C3-horizon soils. Numerous sand trails crisscross the site area. Based on the observed degree of surficial erosion and evidence of extensive military excavations, no subsurface testing was undertaken. The Quartz Rubble site (31HK668) is considered destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK671

Summary Data

Site Number: 31HK671
Site Name: Hot Chicken
Cultural Component(s): Middle Archaic
County: Hoke
USGS 7.5' Quadrangle: McCain
UTM (NAD-27): Easting—0654340 Northing—3882380
Landform: Upland Slope
Elevation (Feet AMSL): 355
Slope Percent: 1-2
Slope Face: E
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Lakeland sand
Nearest Water (Meters): 260
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category VI
Surface Visibility (Time of Survey): 50-100%
Surface Collected Artifacts: Yes
Positive STPs: 0
Negative STPs: 0
Approximate Site Size (Meters^2): 2500
Observed Disturbance(s): Roads and trails, clear cutting, erosion and military excavations

The Middle Archaic period Hot Chicken site was recorded and investigated during the LRAM survey of gun position EE-204 (Figure 16). The site is located on the easterly trending slope of an upland flat, approximately 260 m west of an unnamed, now dry, tributary of Gum Branch. The distal fragment of a stemmed biface and six pieces of lithic debitage were recovered from the surface. Much of the original stem portion of the broken biface, which is perhaps better classified as a drill, is missing, but the diagnostic shoulder area and distal tip remain (Figure 17). The drill appears to be a reworked/resharpened projectile point made from aphyric rhyolite. The face of the stem break is less weathered than the worked surfaces of the tool, which suggests a more recent, post-depositional break. The point/drill form falls within the expected range of variation for the Morrow Mountain II type as classified and illustrated in Coe (1964:39). The drill has a rather diminutive tip and is very reminiscent of the Morrow Mountain I/II phase drills from the Doerschuk site (31MG22).[9] At present, the date range for the Morrow Mountain phase is approximately 6,200—4,000 B.C. (Driskell 1996; Eastman 1994; Justice 1987). Nearly identical bifacial tools have been recovered on other Early-to-Middle Archaic period sites on Fort Bragg (e.g., Braley and Schuldenrein 1993; Trinkley, Adams and Hacker 1996; Trinkley, Barr and Hacker 1996).

Figure 17. Stemmed metavolcanic biface from 31HK671.

In addition to the reworked projectile point, four metavolcanic late reduction flakes and two quartz flake fragments were recovered. One metavolcanic flake is of aphyric rhyolite, while the remaining three are of a porphyritic rhyolite material. All of the metavolcanic materials show evidence of weathering. The two quartz flakes are of a semi-translucent-to-white material. Metric and technological characteristics of the site's lithic assemblage are summarized in Tables 13 and 14. With the exception of the Morrow Mountain II drill/point, no other temporally diagnostic artifacts were recovered. Materials recovered from this spatially discrete occurrence may be related to the Cherry Patch occurrence, which was observed approximately 200 m to the northwest.

[9] Coe (1964:37) originally categorized similar bifacial tools from Zone VIII at 31MG22 as "Lake Mohave projectile points." Although Zone VIII was recorded as a "sterile" zone between the Morrow Mountain I and Morrow Mountain II occupations at 31MG22 (Coe 1964:25, 35), the bifacial tools must have been produced during the Morrow Mountain I/II occupations at Doerschuk. Coe's original classification of such lozenge shaped tools as "Lake Mohave projectile points" has unfortunately perpetuated the identification of these obviously reworked Morrow Mountain points as "possible Lake Mohave" (Trinkley et al. 1996a) or "similar to Lake Mohave" (Trinkley et al. 1996b) points in the Fort Bragg archaeological literature. Since actual Lake Mohave points are only clearly associated with Early and Middle Archaic period cultures of southeastern California (Campbell et al. 1937), the term "Lake Mohave" should be struck from descriptions of bifacial tools and projectile points recovered on Fort Bragg or, for that matter, from any other area in the Southeastern United States.

Table 13. 31HK671 lithic tools and debitage classes sorted by raw material type.

	Biface	Late Reduction Flake	Flake Fragment	Totals
Metavolcanic	1 (14.3%)	4 (57.1%)	-	5 (71.4%)
Quartz	-	1 (14.3%)	1 (14.3%)	2 (28.6%)
Totals	1 (14.3%)	5 (71.4%)	1 (14.3%)	7 (100%)

Table 14. 31HK671 lithic debitage classes sorted by size categories.*

	≤ 1 cm	> 1 ≤ 2 cm	> 2 ≤ 3 cm	> 3 ≤ 4 cm	Totals
Metavolcanic	-	3 (49.99%)	-	1 (16.67%)	4 (66.66%)
Quartz	1 (16.67%)	1 (16.67%)	-	-	2 (33.34%)
Totals	1 (16.67%)	4 (66.67%)	-	1 (16.67%)	6 (100%)

*Does not include biface.

The general area of the site shows extensive evidence of significant subsurface disturbance from previous military training activities and is badly eroded with 50%+ surface exposure of sandy-to-clayey sand C2/C3-horizon soils. Numerous sand trails crisscross the area of the occurrence. Based on the degree of surficial erosion and evidence of extensive military excavation, no subsurface testing was undertaken. The Hot Chicken site is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK687

Summary Data

Site Number: 31HK687
Site Name: Bella Ray
Cultural Component(s): Early-to-Middle Archaic
County: Hoke
USGS 7.5' Quadrangle: Nicholson Creek
UTM (NAD-27): Easting—0665050 Northing—3887870
Landform: Hill slope
Elevation (Feet AMSL): 500
Slope Percent: 4-5
Slope Face: SE
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Vaucluse-Gilead loamy sand
Nearest Water (Meters): 400-450
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category III/IV
Surface Visibility (Time of Survey): 30- 100%
Surface Collected Artifacts: Yes
Positive STPs: 0
Negative STPs: 0
Approximate Site Size (Meters^2): 3600 (exposed)
Observed Disturbance(s): Road cut and peripheral erosion, Artillery Impact Area Buffer

The Archaic period Bella Ray site, recorded and investigated during the LRAM survey of OP-11 (Artillery Observation Post), is located inside Coleman Impact Area, just beyond the 300 m "buffer zone" strip that borders the live ordnance impact area (Figure 18). The site is situated on the crest of a substantial upland hilltop, locally known as Gaddy's Mountain, near the headwaters of Deep Creek, approximately 400-to-450-m west of the now dry stream head. A crude side/corner-notched projectile point, a biface fragment, 52 pieces of lithic debitage and numerous firecracked rock fragments (n=3) were recovered from three discrete activity loci, mapped respectively as Loci-1, 2, and 3. The surface artifact distribution covered a large area some 200 m long.

A single corner-notched projectile point with lightly serrated edges was found on the periphery of Locus-2 (Figure 19). The rather crude point is actually a retouched metavolcanic flake with marked unifacial thinning. The tip and part of the base, however, are broken and the fragmented elements were not recovered. The point is made of a flow-banded, aphyric metavolcanic material that is very heavily patinated. The faces of the tip and basal breaks are only moderately weathered, which suggests post-depositional rather than use damage. The point form falls very roughly within the expected range of variation for the Palmer or Kirk corner-notched types as originally classified and illustrated in Coe (1964:69-71). At present, the generally accepted date range for the Kirk sub-phase associated with corner-notched projectile points is approximately 8,000—6,300 B.C., while the date range for the approximately contemporaneous Palmer phase is 7,500—6,300 B.C. (Anderson, et al. 1996; Chapman 1985; Eastman 1994; Justice 1987; Michie 1996; Sassaman et al. 1990).

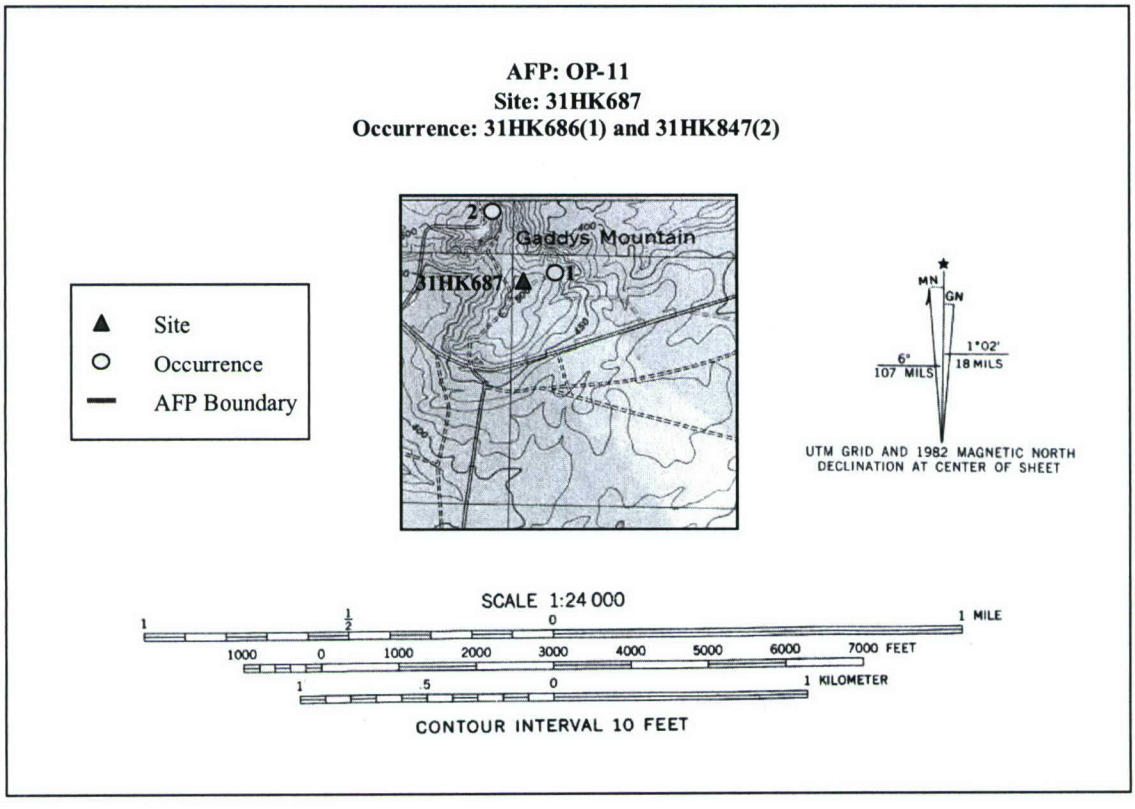

Figure 18. Detail of Nicholson Creek Quadrangle showing locations of 31HK686, 31HK687 and 31HK847.

The Locus-1 lithic assemblage contains a single retouched metavolcanic flake (Figure 19), firecracked quartzite (91.2 g) and a small assortment of quartz and metavolcanic debitage. Locus-2 materials include a quartz biface fragment (mid-section), firecracked quartzite (21.2 g) and a small assortment of metavolcanic and quartz flakes. The Locus-3 assemblage consists of quartz debitage and quartzite firecracked rock (82.6 g). Compared to the total frequency of quartz materials (86.5%), metavolcanic debitage (13.5%) on the site is minimal. Two late reduction flakes, one early reduction flake and three flake fragments of heavily weathered aphyric metavolcanic material were found. In the assemblage of quartz materials, early reduction flakes and large pieces of core shatter are most prominent. Early reduction stage quartz materials (corticated primary or early reduction flakes and core shatter), combined, account for 61.3% of the overall quartz assemblage. The quartz material is diverse in terms of quality, crystalline structure and color with highly variable semi-translucent-to-white or smoky opaque, milky (4%) and crystal quartz (2%) varieties represented in the assemblage. The metric and technological characteristics of the site's lithic assemblage are summarized in Tables 15 and 16.

The heterogeneity of the metavolcanic and quartz material suggests multiple reduction episodes with variable materials over time. Since the bulk of the site's lithic assemblage can be classified as early reduction stage debitage, tool-making activities appear to have focused on quartz nodules and river cobbles prepared and reduced on-site. This strategy contrasts to the pattern observed on the Iron Butterfly (31HK642), Middle Toe (31CD750) or Red Rooster sites (31CD475) (Irwin et al. 1998; Irwin and Moore 2004) sites where the recovered lithic assemblage characteristics suggest that tool making was accomplished through the use of prepared cores or blanks that were reduced or otherwise prepared off-

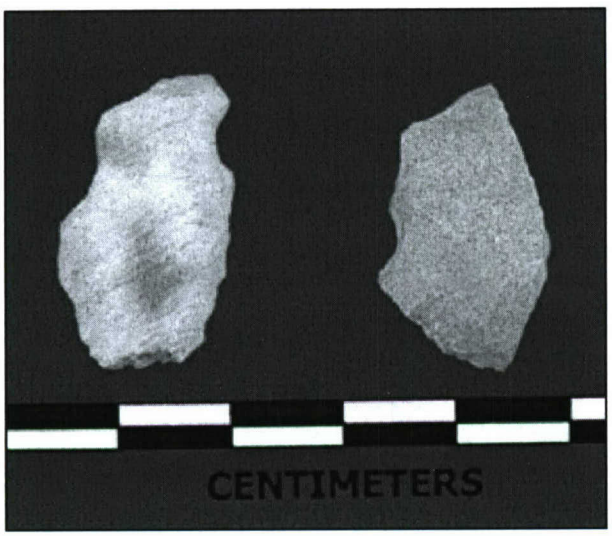

Figure 19. Corner-notched projectile point (left) and retouched flake tool (right) from 31HK687.

Table 15. 31HK687 lithic tools and debitage classes sorted by raw material type.

	Projectile Point	**Late Stage Biface**	**Free-hand Core**	**Retouched Flake Tool**	**Primary Reduction Flake**	**Early Reduction Flake**	**Late Reduction Flake**	**Flake Fragment**	**Core Shatter**	**Totals**
Metavolcanic	1 (1.8%)	-	-	1 (1.8%)	-	1 (1.8%)	2 (3.7%)	3 (5.6%)	-	8 (14.7%)
Quartz	-	1 (1.8%)	1 (1.8%)	-	1 (1.8%)	15 (27.8%)	6 (11.1%)	11 (20.5%)	11 (20.5%)	46 (85.3%)
Totals	1 (1.8%)	1 (1.8%)	1 (1.8%)	1 (1.8%)	1 (1.8%)	16 (29.6%)	8 (14.8%)	14 (26.1%)	11 (20.5%)	54 (100%)

Table 16. 31HK687 lithic debitage classes sorted by size categories.*

	≤1 cm	**>1≤2 cm**	**>2≤3 cm**	**>3≤4 cm**	**>4≤5 cm**	**>5≤6 cm**	**Totals**
Metavolcanic	-	4 (8%)	-	-	1 (2%)	1 (2%)	6 (12%)
Quartz	3 (6%)	17 (34%)	17 (34%)	7 (14%)	-	-	44 (88%)
Totals	3 (6%)	21 (42%)	17 (34%)	7 (14%)	1 (2%)	1 (2%)	50 (100%)

*Does not include projectile point, retouched flake, biface, freehand core or firecracked rock.

site. Given the upland setting and the obvious lack of prehistoric ceramics, occupations on the site appear to have been restricted to the Archaic period. The somewhat diagnostic attributes of the site's single projectile point further suggest that human activities on the site took place in the Early Archaic or early Middle Archaic periods.

Since the site is located inside an active artillery impact area, the potential presence of buried, unexploded ordnance precludes actual subsurface testing of the site locale. A heavily utilized and somewhat eroded sand road bisects the site, but the site area beyond the road shoulder is heavily vegetated and does not appear to be significantly disturbed from past military training activities. While subsequent revisits will likely produce additional artifacts from eroded surface contexts, the Bella Ray site (31HK687) is considered untestable and not likely to produce significant archaeological data from surface collection only. As such, site potential is circumstantially limited and the site is not considered eligible for inclusion to the NRHP. No further work beyond re-visit surface collection is recommended.

31HK689

Summary Data

Site Number: 31HK689
Site Name: Screaming Crow
Cultural Component(s): Prehistoric
County: Hoke
USGS 7.5' Quadrangle: Nicholson Creek
UTM (NAD-27): Easting—0661140 Northing—3882320
Landform: Hilltop
Elevation (Feet AMSL): 395
Slope Percent: 0-1
Slope Face: Hilltop crest
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Lakeland sand
Nearest Water (Meters): 300
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category VI
Surface Visibility (Time of Survey): 90-100%
Surface Collected Artifacts: Yes
Positive STPs: 0
Negative STPs: 0
Approximate Site Size (Meters^2): 900
Observed Disturbance(s): Clear cutting, erosion and military excavations

The prehistoric Screaming Crow site was recorded and investigated during the LRAM survey of gun position HH-102 (Figure 20). The site is located on the south-southwesterly trending slope of a low ridgeline hilltop near the head of an unnamed Juniper Creek tributary. The central area of the site is situated approximately 300 m north of the stream head. Six metavolcanic late reduction flakes were recovered from the surface of the site. While all six flakes are of aphyric rhyolite, at least two of the pieces are of a flow-banded material. All of the debitage shows evidence of moderate-to-heavy weathering. This heterogeneous lithic scatter is potentially indicative of multiple reduction episodes and suggests some limited prehistoric tool manufacturing activity in the area, but no temporally diagnostic artifacts were recovered. Materials recovered from this spatially discrete, 30 m^2, site may be related to activities at the Hemingray Occurrence (31HK690), a small lithic scatter, recorded approximately 200 m

to the northeast. Unfortunately, no chronologically diagnostic materials were recovered from either of these two potentially related sites. The metric characteristics of the site's lithic assemblage are summarized in Table 17.

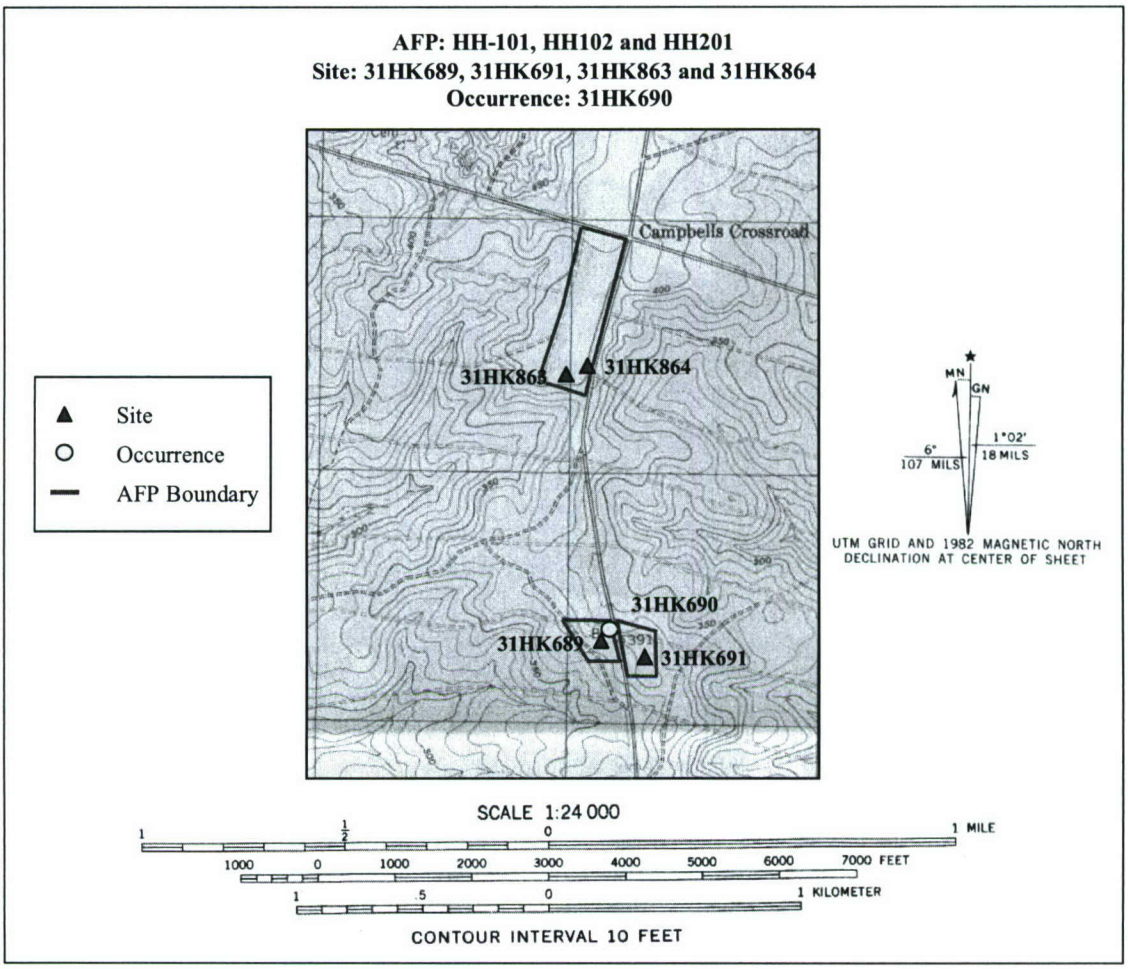

Figure 20. Detail of Nicholson Creek Quadrangle showing locations of 31HK689, 31HK690, 31HK691, 31HK863 and 31HK864. Project area boundaries correlate with Artillery Firing Point (AFP) boundaries.

Table 17. 31HK689 lithic debitage classes sorted by size categories.

	≤ 1 cm	> 1 ≤ 2 cm	> 2 ≤ 3 cm	> 3 ≤ 4 cm	> 4 ≤ 5 cm	Totals
Metavolcanic	-	2 (33.3%)	4 (66.7%)	-	-	6 (100%)

Soils on the site are generally representative of the Lakeland Series, but are completely deflated and/or disturbed. The specific site locale shows surficial evidence of extensive subsurface disturbance

from previous military training activities with readily evident signs of past artillery firebase construction. The area is generally disturbed or deflated with 95%+ surface exposure of sandy C2/C3-horizon soils. Based on the degree of surficial erosion and evidence of extensive military excavations, no further subsurface testing was undertaken. The Screaming Crow site (31HK689) is considered destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK691

Summary Data

Site Number: 31HK691
Site Name: Trash Hill
Cultural Component(s): Prehistoric
County: Hoke
USGS 7.5' Quadrangle: Nicholson Creek
UTM (NAD-27): Easting—0661320 Northing—3882270
Landform: Hilltop
Elevation (Feet AMSL): 395
Slope Percent: Hilltop Crest
Slope Face: n/a
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Lakeland sand
Nearest Water (Meters): 200
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category VI
Surface Visibility (Time of Survey): 90-100%
Surface Collected Artifacts: Yes
Positive STPs: 0
Negative STPs: 0
Approximate Site Size (Meters^2): 2500
Observed Disturbance(s): Clear cutting, erosion and military excavations

The prehistoric Trash Hill site was recorded and investigated during the LRAM survey of gun position HH-201 (Figure 20). The site is located on a low ridgeline hilltop near the head of an unnamed Nicholson Creek tributary. The central area of the site is situated approximately 200 m southwest of the stream head. A reworked core scraper and sixteen pieces of lithic debitage were recovered from the surface of the site. The quartz scraper is of interest in that it is made from a quartz platform core. The core was probably used to produce expedient flake tools, but was later retouched to make a large side-scraper. Although the sample size is small, metavolcanic debitage on the site, as compared to the frequency of quartz materials, is minimal. Three aphyric metavolcanic late reduction flakes or flake fragments and a single flake fragment of porphyritic material, were found. All four pieces of metavolcanic debitage are moderately to heavily weathered. The quartz debitage assemblage contains primary, early and late reduction flakes as well as numerous flake fragments. The quartz material is

diverse in terms of crystalline structure, quality and color with semi-translucent-to-white and milky quartz varieties represented in the assemblage.

Like the diversity evident in the small assemblage of metavolcanic materials, the heterogeneity of the quartz material is likely indicative of multiple reduction episodes with variable materials. Since the majority of the identifiable lithic materials are late-stage flakes, reduction activities initially occurred on lithic materials partially reduced or otherwise prepared off-site. The few quartz primary stage reduction flakes, however, suggest limited tool manufacturing with intact river cobbles also occurred at the site. The metric and technological characteristics of the site's lithic assemblage are summarized in Tables 18 and 19. This site, while spatially closer to the Nicholson Creek drainage, may be related to the Hemingray Occurrence and the Screaming Crow site. Although these two sites seem to be more oriented to the Juniper Creek drainage, both locations are located, respectively, 180 and 200 m west-northwest of the Trash Hill site along the same ridge system. Unfortunately, no chronologically diagnostic materials were recovered from the prehistoric components of these three potentially related sites.

Table 18. 31HK691 lithic tools and debitage classes sorted by raw material type.

	Scraper	**Primary Reduction Flake**	**Early Reduction Flake**	**Late Reduction Flake**	**Flake Fragment**	**Totals**
Metavolcanic	-	-	-	2 (11.8%)	2 (11.8%)	4 (23.6%)
Quartz	1 (5.9%)	2 (11.8%)	1 (5.9%)	5 (29.4%)	4 (23.5%)	13 (76.4%)
Totals	1 (%)	2 (%)	1 (%)	7 (%)	6 (%)	17 (100%)

Table 19. 31HK691 lithic debitage classes sorted by size categories.

	≤ 1 cm	**> 1 ≤ 2 cm**	**> 2 ≤ 3 cm**	**> 3 ≤ 4 cm**	**Totals**
Metavolcanic	-	-	4 (25.0%)	-	4 (25.0%)
Quartz	-	8 (50.0%)	3 (18.8%)	1 (6.2%)	12 (75.0%)
Totals	-	8 (50.0%)	7 (43.8%)	1 (6.2%)	16 (100%)

Soils on the site are generally representative of the Lakeland Series, but are completely deflated and/or disturbed. The specific site locale shows surficial evidence of extensive subsurface disturbance from previous military training activities with apparent evidence of past artillery firebase construction. The area is generally disturbed or deflated with 95%+ surface exposure of sandy C2/C3-horizon soils. Based on the degree of surficial erosion and evidence of extensive military excavations, no further subsurface testing was undertaken. The Trash Hill site (31HK691) is considered destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK693

Summary Data

Site Number: 31HK693
Site Name: Upper Horse Creek
Cultural Component(s): Middle Archaic
County: Hoke
USGS 7.5' Quadrangle: Lobelia
UTM (NAD-27): Easting—0660795 Northing—3893790
Landform: Ridge Toe
Elevation (Feet AMSL): 345
Slope Percent: 6-7
Slope Face: N-NW
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Candor
Nearest Water (Meters): 80
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category IV/V
Surface Visibility (Time of Survey): 50-100%
Surface Collected Artifacts: Yes
Positive STPs: 0
Negative STPs: 8
Approximate Site Size (Meters^2): 2000
Observed Disturbance(s): Roads and trails, clear cutting, erosion and military excavations

The Middle Archaic period Upper Horse Creek site was recorded and investigated during the LRAM survey of gun position V-101 (Figures 21—22). The site is located on the north-northwest slope of an upland ridge toe, approximately 80 m south of an unnamed tributary that merges with an adjacent stream to form the headwaters of Horse Creek. Lithic debitage, tool fragments and two late-stage, corner-notched projectile points were recovered from the surface. The site, as defined by the surface distribution of artifacts, is bisected by a firebreak road. Two STP transects, with four 30-m interval STPs each, were excavated on each side of the firebreak where soils appeared to be relatively undisturbed by the road cut. While the soil column in the vicinity of all eight STPs appeared to be relatively intact, no cultural materials were recovered from a subsurface context.

The basal portion of a nearly finished corner-notched point was found in two pieces (the recently broken point, *sans* tip, has been mended [Figure 23]). Some excess, poorly flaked material remains on the dorsal/ventral surface of the midsection; as such, the point is about 90—95% finished. The point is made of a flow-banded, aphyric metavolcanic material that is heavily patinated. The face of the tip break is well weathered, comparable to the weathering on the worked surfaces of the tool, which suggests a pre-depositional use break. The point form falls within the expected range of variation for the Kirk Corner-Notched type as classified and illustrated in Coe (1964:71). A second projectile point, either a late-stage biface or crudely reduced projectile point, was also recovered (Figure 23). This specimen shows evidence of corner-notching, but both ears are broken off and missing. The heavily patinated piece is of an aphyric metavolcanic material and most probably represents a late-stage Kirk Corner-Notched point. At present,

the generally accepted date range for the Kirk sub-phase associated with corner-notched projectile points is approximately 8,000—6,300 B.C. (Chapman 1985; Eastman 1994; Justice 1987; Michie 1996; Sassaman 1996; Sassaman et al. 1990).

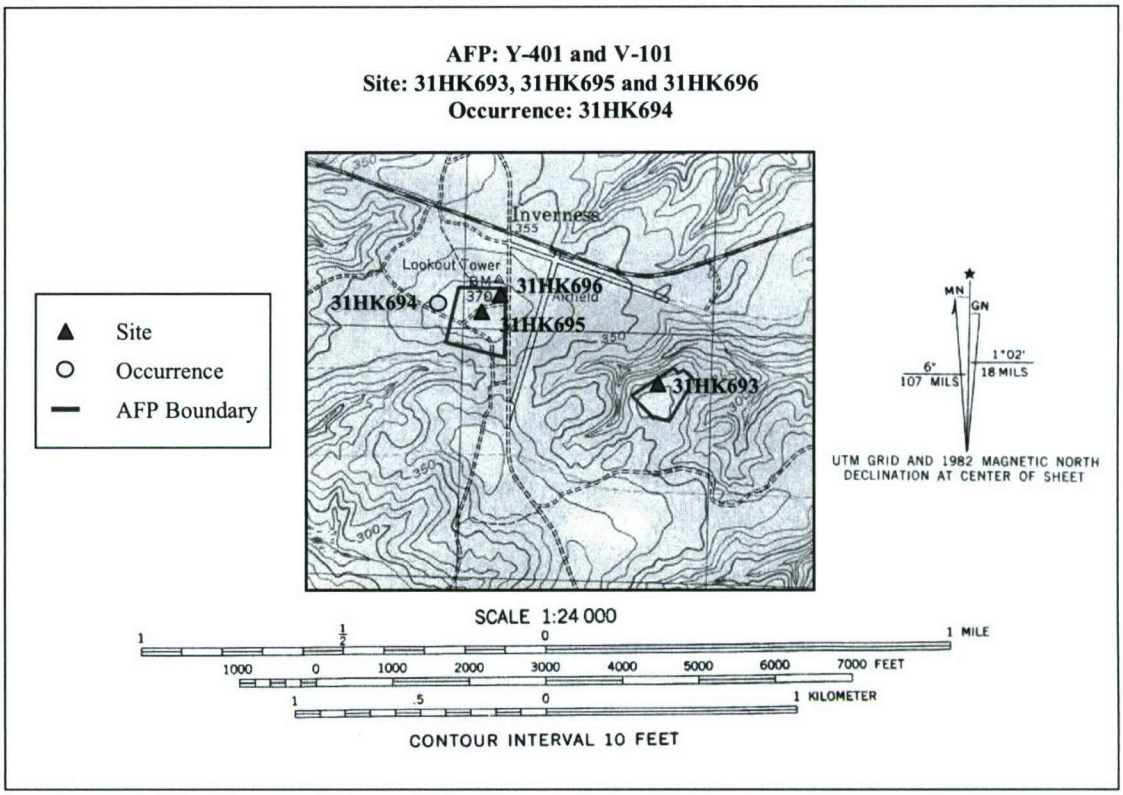

Figure 21. Detail of Lobelia Quadrangle showing locations of 31HK693, 31HK694, 31HK695 and 31HK696. Project area boundaries correlate with Artillery Firing Point (AFP) boundaries.

Compared to the frequency of quartz materials (n=56, 93.3%), metavolcanic debitage (n=4, 6.7%) on the site is minimal. Four metavolcanic late reduction flakes, three of aphyric material and one of porphyritic material, were found. A diminutive, retouched quartz flake, probably a small scraper, and an intermediate stage quartz biface fragment were recovered along with 56 pieces of quartz debitage. In the quartz assemblage, late reduction flakes and flake fragments are most prominent. Early-stage quartz materials are less frequent, as early-stage reduction flakes and core shatter fragments, combined, account for less than 26% (n=15) of the quartz assemblage. The quartz material is diverse in terms of quality, crystalline structure and color with both semi-translucent-to-white and higher quality milky quartz (3.8%) varieties represented in the assemblage. The metric and technological characteristics of the site's lithic assemblage are summarized in Tables 20 and 21. Like the diversity evident in the small assemblage of metavolcanic materials, the heterogeneity of the quartz material suggests multiple reduction episodes with variable materials over time. Since the majority of the identifiable lithic materials are either late-stage tools or flakes, reduction activities likely occurred on lithic materials partially

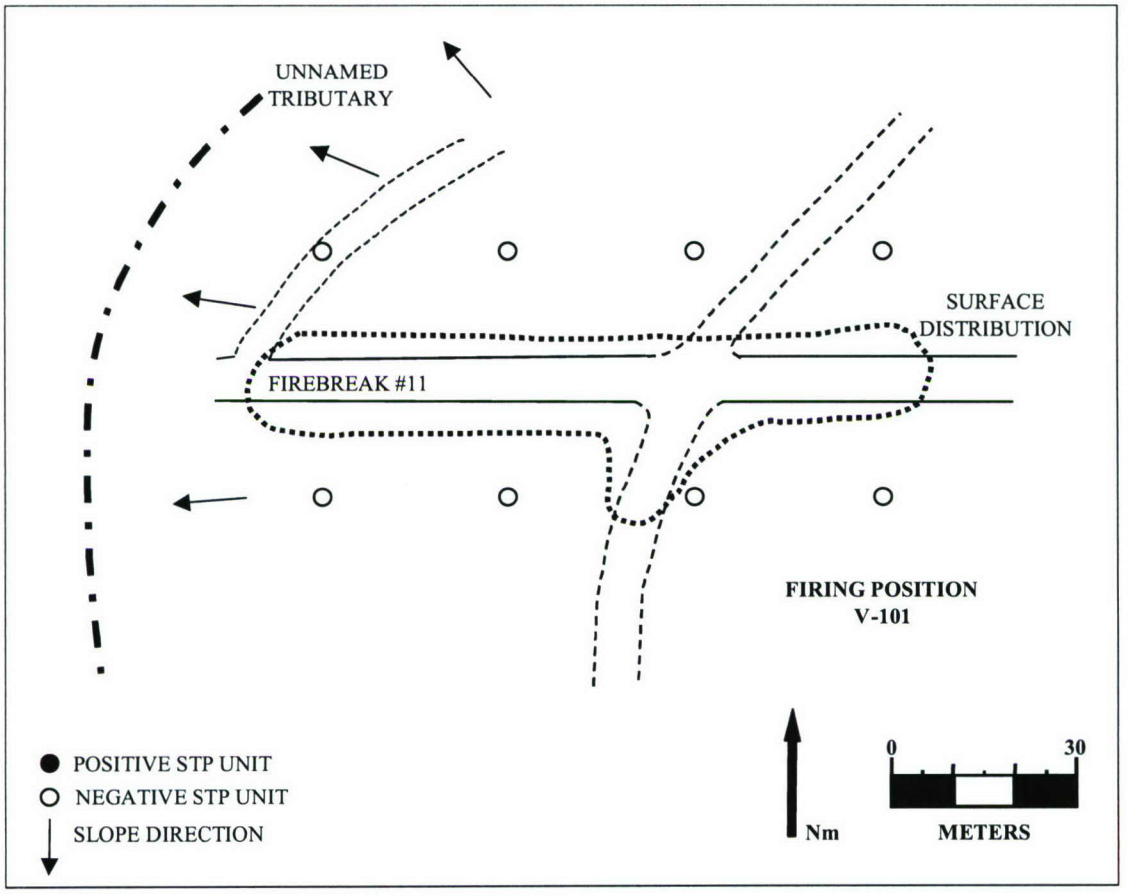

Figure 22. 31HK693 site plan from field sketch map showing approximate shovel test pit (STP) locations and surface artifact distribution.

Figure 23. Corner-notched projectile points from 31HK693.

reduced or otherwise prepared off-site. With the exception of the two Kirk Corner-Notched points, no other temporally diagnostic artifacts were recovered.

Table 20. 31HK693 lithic tools and debitage classes sorted by raw material type.

	Projectile Point	**Intermediate Stage Biface (Fragment)**	**Retouched Flake Tool**	**Early Reduction Flake**	**Late Reduction Flake**	**Flake Fragment**	**Core Shatter**	**Totals**
Metavolcanic	2 (3.1%)	-	-	-	4 (6.3%)	-	-	6 (9.4%)
Quartz	-	1 (1.6%)	1 (1.6%)	4 (6.2%)	20 (31.2%)	21 (32.8%)	11 (17.2%)	58 (90.6%)
Totals	2 (3.1%)	1 (1.6%)	1 (1.6%)	4 (6.2%)	24 (37.5%)	21 (32.8%)	11 (17.2%)	64 (100%)

Table 21. 31HK693 lithic debitage classes sorted by size categories.*

	≤ 1 cm	**> 1 ≤ 2 cm**	**> 2 ≤ 3 cm**	**> 3 ≤ 4 cm**	**> 4 ≤ 5 cm**	**> 5 ≤ 6 cm**	**Totals**
Metavolcanic	-	3 (5.0%)	1 (1.7%)	-	-	-	4 (6.7%)
Quartz	16 (26.6%)	31 (51.7%)	5 (8.3%)	2 (3.3%)	1 (1.7%)	1 (1.7%)	56 (93.3%)
Totals	16 (26.6%)	34 (56.7%)	6 (10.0%)	2 (3.3%)	1 (1.7%)	1 (1.7%)	60 (100%)

*Does not include projectile point, biface, retouched flake or firecracked rock.

While the soils peripheral to the surface defined site are undisturbed, it appears that the construction of the firebreak destroyed the core site area. Soils in the undisturbed areas of the site are generally representative of the Candor Series. The site's intact soil profile consists of dark grayish brown, sandy humus, overlying an E-horizon of yellowish brown sand. The Bt-horizon is yellowish brown loamy or clayey sand. Where apparently undisturbed, the average depth of the A-horizon is 15 cm, while the Bt-horizon is generally evident between 50 and 65 cmbs. As all STPs were sterile of cultural material, no further subsurface testing was undertaken. The Upper Horse Creek site is considered destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK695

Summary Data

Site Number: 31HK695
Site Name: Tower House
Cultural Component(s): Historic—Late 19th to Early 20th Century
County: Hoke
USGS 7.5' Quadrangle: Lobelia
UTM (NAD-27): Easting—0660080 Northing—3894060
Landform: Upland Flat
Elevation (Feet AMSL): 370
Slope Percent: 0-1
Slope Face: n/a
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Candor sand
Nearest Water (Meters): 300
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category V
Surface Visibility (Time of Survey): 35-100%
Surface Collected Artifacts: Yes
Positive STPs: 26
Negative STPs: 5
Approximate Site Size (Meters^2): 6400
Observed Disturbance(s): Roads and trails, clear cutting, erosion and military excavations

The historic Tower House site was recorded and investigated during the LRAM survey of gun position Y-401 (Figures 21 and 24). The site is located on an upland flat near the headwaters of an unnamed tributary of Tuckahoe Creek. The site is approximately 300 m north-northeast of the stream head. The general location of the site falls within the boundaries of property owned by Absolom L. Gilliland (1852—1930) in 1918 (Sirrine 1919). The 50-acre tract (Camp Bragg[CB] Tract 374) was one of three properties owned by Mr. A. L. Gilliland and purchased by the Army for Camp Bragg sometime after 1918. A. L. Gilliland also owned a 150-acre property (CB Tract 375) that adjoined the 50-acre tract where the Tower House site is located, as well as a separate 76-acre tract (CB Tract 372) on the west side of Black Creek. This third tract is northeast of the Tower House site (Sirrine 1919). A 1919 topographic map of Camp Bragg (US Army Corps of Engineers [USACE] 1919) and a 1918 soil survey map of Hoke County (USDA 1918) both show two structures in the general vicinity of the Tower House site, approximately 65-to-70-m west of the old Inverness Road. While it is not known if A. L. Gilliland and his family actually lived at the Tower House site, he is buried in the McLeod-Tuckahoe Cemetery, which lies off Gilliland Road, approximately two kilometers northwest of the Tower House site (Boyko and Kern 1997). A 1920 inventory of "Owners' Improvements" (Camp Bragg 1920) included in the Camp Bragg properties appraisal records indicates the presence of two "dwellings" on the 50-acre tract (CB Tract 374), but no dwellings or other structures on the other two A. L. Gilliland properties (CB Tracts 372 and 375). We further discuss this convoluted issue below.

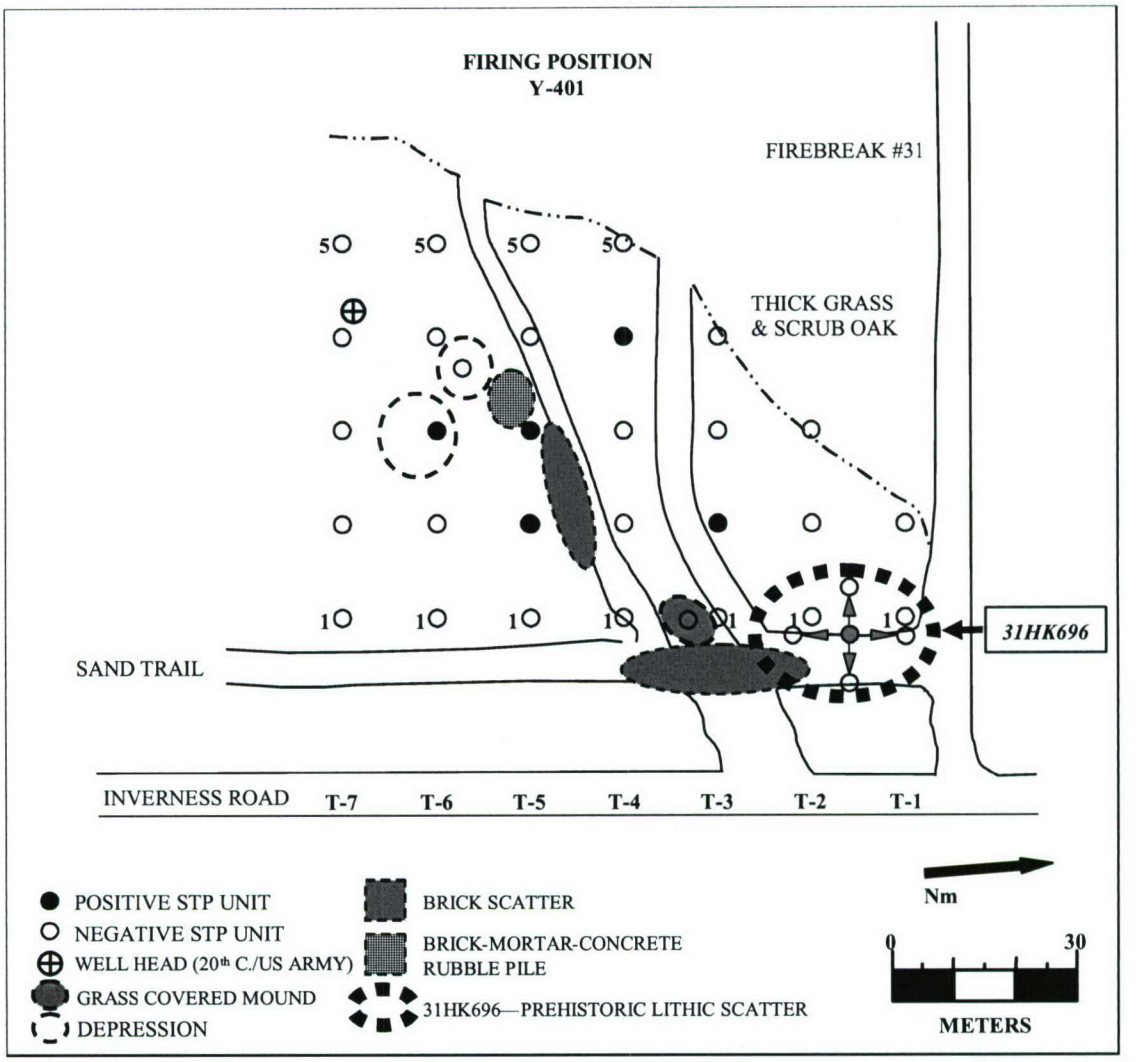

Figure 24. 31HK695 and 31HK696 site plans from field sketch maps showing approximate shovel test pit (STP) locations and surface artifact distributions.

One hundred and twenty-six historic ceramic sherds, 67 glass container fragments, and numerous architectural and agricultural artifacts were recovered from the surface of the site. Seven east-west oriented shovel test transects with a total of 31, 15-m interval STPs were excavated across the site area as defined by the limits of the surface artifact distribution (Figure 24). Only five STPs produced subsurface cultural materials (e.g., brick, mortar, glass and ceramics). No evidence of *in situ* surface or subsurface architectural features was observed. STP units T-3, STP-2 and T-4, STP-4 produced brick fragments with vitrified surfaces and burned mortar in the A-horizon (0—25 cmbs). One plain whiteware sherd and a glass container fragment were recovered from two disturbed STP units (T-5, STP-3 and T-6, STP-3). A shallow, circular depression, initially suspected to be a possible trash or privy pit feature, produced no artifacts other than a single plain whiteware sherd (T-5, STP-2). There was no stratigraphic evidence of feature fill or similar anthropogenic disturbance in this unit. While the surficial distribution of artifacts

across the site was found to cover an area measuring some 90-x-90 m, the subsurface artifact distribution was much more limited, with a distribution measuring some 45-x-30 m (Figure 24). The fact that the bulk of the cultural material was found on the surface or in the A-horizon, suggests that little or no significant soil accumulation has occurred on the site since the Army razed the house in the post-1918 era.

An open shaft/pit feature, roughly round in plan view, some 130 cm deep and 47 cm in diameter, was observed near T-7, STP-4. Initially, it was thought that the pit might represent a historic period well shaft associated with the Tower House site. The base of the feature was cored to a depth of 270 cmbs. The soil profile recorded for the open portion of the feature, combined with the soil profile recorded from the core sample, indicated an undisturbed soil column (i.e., natural stratigraphy). There was no evidence of soil homogenization or disturbance that would be expected with a historic period hand-dug well shaft. As such, it appeared that the open pit feature is most likely related to recent military activities on the site. In a follow-up conversation with a former, Fort Bragg Range Control Biologist, it was determined that an Army Combat Engineer unit had drilled practice well shafts in the general area of gun position Y-401 in 1993 and 1994 (Evelyn Watkins, Fort Bragg Range Control, personal communication 1999). An open well-head pipe, set in a square concrete base, was also observed and recorded on the north-northeast side of the same gun position. A small prehistoric site, 31HK696, was investigated on the periphery of the historic site discussed here (Figure 24)—the findings are reported in a separate report section below.

The recovered artifact assemblage is indicative of a small historic period habitation site, most probably a post-Civil War farmstead (Tables 22—23). The ceramics (Table 22) are generally rather nondescript, plain whiteware, ironstone, porcelain and stoneware sherds that exhibit few specifically dateable decorative designs or makers' marks (Figure 25). One surface collected sherd is from the base of a whiteware/ironstone dinner plate and has a partial maker's mark. The mark corresponds to that used by the Globe Pottery Company of East Liverpool, Ohio between the years 1888 and 1912 (Kovel and Kovel 1986:63B). A second whiteware/ironstone sherd, with the partial mark "ENGLAN," was recovered, but the incomplete mark cannot be specifically attributed to one particular manufacturer. Of the 126 recovered ceramic sherds, approximately 75.4% of the assemblage is either plain whiteware or ironstone tableware, while other ceramic types fall well within the minority (stoneware 11.9%; porcelain = 8.7%; yellow ware = 4.0%). One base sherd from a porcelain platter was found with an overglaze print (polychrome w/ green and red). Only 3 of the 33 whiteware and ironstone rim sherds from flat tableware are decorated; one sherd with an edge molded "dot" design, and two with a molded "vine" motif

Table 22. 31HK695 historic ceramic sherds sorted by general ware type and predominant decorative treatment.

	Plain	**Edge-molded Decoration**	**Transfer-printed Decoration**	**Gilt Decoration#**	**Totals**
Whiteware	92 (73%)	3 (2.4%)	-	-	95 (75.4%)
Yellow Ware	5 (4%)	-	-	-	5 (4%)
Stoneware	15 (11.9%)	-	-	-	15 (11.9%)
*Porcelain**	6 (4.8%)	-	1 (.7%)	4 (3.2%)	11 (8.7%)
Totals	118 (93.7%)	3 (2.4%)	1 (.7%)	4 (3.2%)	126 (100%)

*Six of eleven porcelain sherds (gilt, molded, transfer-printed) are from the same tea/coffee cup or set of matched tea/coffee cups.
#Gilt porcelain sherds have transfer-printed and/or molded decoration

(Figure 25). No other tableware fragments appear to be from transfer-printed, hand-painted or otherwise decorated wares. Four sherds from a porcelain tea/coffee cup with bright gold gilt decoration were found on the surface (Figure 26). The cup fragments were further decorated with an overglaze leaf/floral print and molded designs (scallop shell and dot motif) on the upper body and rim.

Twenty sherds are fragments of utilitarian type, stoneware or yellow ware storage vessels, such as jugs, jars or crocks. In general, the majority of the stoneware sherds have Bristol slipped exterior and interior finishes (60%), while other finishes are rather evenly distributed within the small assemblage (Bristol slipped exterior/Albany slipped interior = 20%; Bristol slipped exterior/plain interior = 13.3%; Albany slipped exterior/interior 6.7%). Yellow wares are represented in the ceramic assemblage by the presence of a lug-handle from a small jar or pot and four body sherds, one with a brown slip decoration, from crocks or similar type utilitarian vessels. Generally, the characteristics of the utilitarian sherds recovered from the Tower House site are consistent with utilitarian wares (e.g., Bristol slipped stoneware, plain ironstone, yellow ware, etc.) produced in the United States between 1860 and 1930 (Ketchum 1983; Raycraft and Raycraft 1987; Snyder 1995). Overall, the complete ceramic assemblage, in terms of ware frequencies and the predominance of whitewares, is reminiscent of Postbellum assemblages recovered from small farmstead sites in the Middle Atlantic and Southeast regions (e.g., Fine 1990; Lewis 1978; Orser et al. 1987).

Glass artifacts are primarily bottle and container sherds (e.g., solarized, clear, aqua and dark brown) and fragments of proprietary medicine or bitters bottles dominate the assemblage (Figure 27). Although glass table or decorative wares are poorly represented in the glass assemblage, five pressed-glass sherds were recovered. One fragment is solarized glass from a vase or decorative bowl with a raised floral motif (Figure 27) and two sherds are white milk glass from a small, scalloped-edge plate. Other pressed glass sherds include two unidentifiable fragments of milk glass and one melted rim sherd (scalloped) from a clear glass plate. Only one dark-green glass, spirits bottle fragment was recovered. Generally, the characteristics of the glass fragments recovered from the Tower House site are consistent with traits expected for bottles and glassware (e.g., patent medicine bottle fragments, solarized glass, etc.) produced in the United States between 1870 and 1918.[10] Although a small number of glass fragments from mid-to-late twentieth century soft drink bottles were collected, these materials, along with numerous rusted C-Ration cans, likely relate to post-1940 military activities on the site and are intrusive in the historic house site artifact assemblage.

Compared with ceramic vessel sherds, glass container fragments and architectural artifacts, personal, agricultural and household items occur infrequently in the Tower House site artifact assemblage. Similar artifact patterns (i.e., low frequencies of personal, household and farm items) have been noted on other late nineteenth and early twentieth century, rural homestead sites in the South (Lebo 1987). Agricultural and farm life related artifacts include a broken plow blade fragment, steel washers and bolts, fencing staples, heavy-gage wire and ammunition. A paper-shell type, shotgun shell end cap, marked "PETERS - 16 - H.V. - MADE IN U.S.A.", was found mixed in with the domestic, architectural

[10] Solarized glass results when glass decolorized with manganese is exposed to ultra-violet (UV) sunrays. Manganese was not generally used to decolorize glass until 1880 (Newman 1970; NCOSA 1996; Polak 1994). Before World War I, European and American glassmakers typically imported manganese from Germany. With the advent of war in Europe and a subsequent trade embargo, American glassmakers switched from manganese to selenium to decolorize glass of its natural impurities. As a result, clear glass containers manufactured with manganese were not generally produced in America after 1915 (Newman 1970; Polak 1994). Patent medicines (i.e. "snake oils" and formulas of such ilk) became increasingly popular after 1860, but the Pure Food and Drug Act of 1907 led to more stringent government regulations and the eventual demise of the patent drug business when manufacturers were forced to list the ingredients of their remedies. "Classic" patent medicine and bitters bottles with embossed panels were generally produced between 1870 and 1920 (Polak 1994; Rosenberg and Kvietok 1981).

Figure 25. Undecorated (top row) and decorated (bottom row) rim sherds from 31HK695.

Figure 26. Decorated porcelain cup sherds from 31HK695.

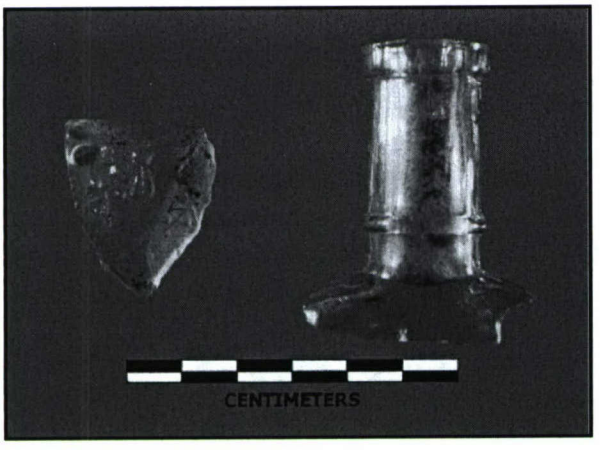

Figure 27. Decorated pressed-glass sherd (left) and row) medicine/bitters bottle neck (right) from 31HK695.

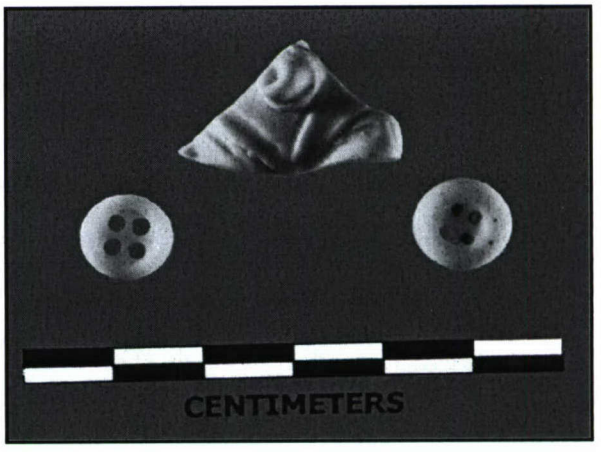

Figure 28. Bisque-fired porcelain doll sherd (top and Prosser type buttons (bottom row) from 31HK695.

and agricultural artifacts. Although Peters brand ammunition was manufactured between 1887 and 1935 (Lebo 1987; Rosenberg and Kvietok 1982), the "made in U.S.A." stamp indicates a post-1891 manufacturing date (NCOSA 1996). A badly smashed .32 caliber pistol bullet (fired) was also recovered. Since the slug is not copper jacketed (standard for 20th century military issue), it did not likely originate from post-1918 military activities and is probably associated with the historic site occupation. Seven carbon battery cores were also recovered from the surface. While the cores may simply be the by-products of World War II era military training activities, carbon core batteries were first produced in the 1880s and have been recovered from late nineteenth century contexts in eastern North Carolina (Zawacki 1996).

Personal activity items recovered from the site are minimal. Two bisque-fired porcelain doll fragments, two white milkglass cosmetic jar sherds, and a single white, Prosser type, garment button, are the only artifacts of this class (Figure 28). Prosser process buttons were first produced in the early 1840s (Sprague 1983) and are ubiquitous on mid-to-late nineteenth and early twentieth century house sites in the South (e.g., Heath 1997; Lebo 1987; Orser et al. 1987; Reeves 1998). The milkglass sherds are from a "cold cream" or similar type ointment jar. The presence of "china doll" fragments on the site suggests the presence of one or more children in the household. While the porcelain doll fragments are relatively common on post-1840 house sites in the South (e.g., Lebo 1987; Orser et al. 1987; Reeves 1998), milkglass ointment jars date to the post-1870 period.

Although the artifact assemblage is generally diverse (Table 23), very few architectural artifacts other than brickbats, sandstone chunks and mortar fragments were recovered. Two cut nails and two wire nails were found on the surface in the northeastern portion of the site. Subsurface architectural artifacts, brick and mortar fragments, were both recovered on the east side of the site. Three surface concentrations of brick fragments were observed and mapped. The deposits were found in the central area of the surface artifact scatter. Although the original house location cannot be positively identified, it appears that the house structure was most likely situated in the northeast quadrant of the Tower House site bounds, approximately 50-75 meters west of Inverness Road and 50-60 meters south of Firebreak #31. The locations of the various rubble piles and the surface artifact concentrations correlate well with a recorded house location on the 1919 topographic map of Camp Bragg (USACE 1919).

Based on the architectural artifacts recovered, few definitive conclusions can be made about the original house construction. Too few nails were found to provide information beyond the fact that both cut and wire nails were used. The recovered nails range between 1-3/4 (4d [cut]) and 2-1/2-to-3 (8d/10d[wire]) inches in length, a size range most commonly used for light framing, molding and finishing (4d) or flooring, boarding and interior finishing (8d/10d) (Orser et al. 1987:560-561 [Tables 103 and 104]). Orser et al. (1987) found that 4d—6d cut nails and 8d—10d wire nails clearly dominated nail assemblages from simple wood frame houses, built during the post-Civil war era, on the Millwood Plantation site (occupations circa, 1832—1930) in South Carolina. There is ample archaeological evidence on Fort Bragg for historic period, wooden framed structures that were built on sandstone piers with either brick or sandstone chimneys (e.g., Scott and Hunt 1998). At the Tower House site, no *in situ* pier or chimney remnants were observed. Large sandstone fragments and brickbats, however, were recovered from a low rubble pile and a rubble filled depression, possibly chimney fall rubble, near T-5, STP-3. Two surface scatters of smaller brick fragments were recorded along the edges of two sand trails that cut through the site. Samples of brick, sandstone and mortar fragments were collected from the three rubble concentrations. No plaster fragments were found in the positive STPs, the three rubble piles, or on the surface of the site.

The large sandstone chunks show no indication of finishing and were apparently not dressed. Analysis of the brick sample indicates that machine-made, stiff-mud (end-cut) and dry-press bricks were used in the construction; no hand-made bricks were recovered. Although both stiff-mud and dry-press

bricks were produced in urban areas of the Northeast before the Civil War, wide-scale production of the two brick types did not become commonplace in the South until the last quarter of the nineteenth century (Greene 1992; Gurcke 1987). In a recent comparative study of bricks from brickyards and standing structures in Knoxville, Tennessee, it was concluded that dry-press common bricks were produced in that region between 1882 and 1890, while stiff-mud (end-cut) bricks were produced between 1888 and 1910. Stiff-mud (side-cut) bricks were found to dominate post-1900 sites, while hand-made or soft-mud (repressed) bricks dominated pre-1880 assemblages (Greene 1992).

It is suggested that the bricks utilized in the construction of the Tower House site were not likely manufactured before 1880. Given the lack of navigable waterways and railroad lines, by which to easily ship large quantities of brick, in the immediate vicinity of the Tower House, manufactured bricks used in the construction must have been shipped to the site by wagon, via the Inverness and Plank Roads. The bricks possibly originated from either the E. A. Poe Brick Company or the McIntyre Brickyard in Fayetteville. The Poe Brick Company was established in 1880 and served a 50 mile radius in the late nineteenth century (Johnson 1992:90). Eight of the sampled brick fragments are vitrified on one or more surfaces, with a dark, brownish red "glaze" on one or more surfaces. The glazing is irregular, generally crizzled and thin, either from secondary firing in a firebox/chimney context, or possibly from closer placement to the kiln fires when originally fired (Luckenbach 1994). Interestingly, the majority of the bricks collected, as well as those left on site after the investigation, show no evidence of mortar residue on any surface. Thus, it appears that the bricks were mortared with a soft mortar compound made from local clay and sand, rather than a more stable, hard mortar mixed with natural cement or Portland cement, which was commonly used after 1880 (McKee 1978).

Table 23. 31HK695 historic artifacts sorted by material type and general functional group categories.

	Kitchen or Consumption	**Architectural**	**Clothing**	**Personal**	**Firearms**	**Activities (Toys)**	**Activities (Agricultural)**	**Activities (Stable)**	**Activities (Misc.)**	**Totals**
Ceramic	126 (45.3%)	49 (17.6%)	-	-	-	1 (.4%)	-	-	-	176 (63.3%)
Glass	61 (21.9%)	2 (.8%)	-	3 (1.0%)	-	-	-	-	-	66 (23.7%)
Iron	1 (.4%)	4 (1.5%)	-	-	-	-	4 (1.5%)	1 (.4%)	5 (1.7%)	15 (5.5%)
Cuprous Alloy	-	-	-	-	1 (.4%)	-	-	-	1 (.4%)	2 (.8%)
Lead	-	-	-	-	1 (.4%)	-	-	-	-	1 (.4%)
Carbon/ Coal	-	-	-	-	-	-	-	-	8 (2.8%)	8 (2.8%)
Stone	-	3 (1.0%)	-	-	-	-	-	-	-	3 (1.0%)
Composite	-	5 (1.8%)	2 (.8%)	-	-	-	-	-	-	7 (2.6%)
Totals	188 (67.6%)	63 (22.7%)	2 (.8%)	3 (1.0%)	2 (.8%)	1 (.4%)	4 (1.5%)	1 (.4%)	14 (4.9%)	278 (100%)

Save a few nails, brickbats and sandstone chunks, no architectural materials other than two fragments of window glass and several large chunks of concrete were found on the site. The limited evidence at hand indicates that the house was a plank-on-frame structure, situated on sandstone piers with a brick, or combination brick and sandstone, hearth and chimney. As no plaster fragments were

recovered, the interior of the house was apparently not plastered. The lack of plaster finished interior walls was common in tenant and smallholder farmhouses of the rural South in the late nineteenth and early twentieth centuries (Heath 1995; Orser et al. 1987). Although the nail assemblage is small (n=6), drawn steel, wire nails are dominant (n=4). Such architectural grade steel nails, made from Bessemer process steel wire, were introduced in the United States in the late 1870s, but did not see wide-spread manufacture or general building use until the period between 1885 and 1890 (Adams 1998; Wells 1998). This observation suggests that the house was probably not built before 1880—1885. This date range correlates well with general date ranges of the recovered bricks (post-1880), general lack of Portland cement mortar (pre-1880), ceramic (ca. 1860—1930) and glass (ca. 1870—1918) assemblages from the site.

Based on the Camp Bragg property map data, we initially suspected that the Tower House site was the Absolom L. Gilliland family home site, but a McLeod family history (McLeod 1983) indicates that A. L. Gilliland, the Inverness community postmaster (ca. 1893—1910), lived with his wife, Mary McLeod Gilliland, in a circa, 1840 home place formerly owned by Daniel and Neill McLeod—Daniel and Neill were reportedly murdered in the home by members of the Henry Berry Lowry Gang in 1870 (McLeod 1983). Neill McLeod, purportedly the Inverness postmaster until his death in 1870, was succeeded in the position by his daughter, Katherine McLeod, who continued to live in the house with sisters Martha and Mary. Katherine eventually retired from the position in 1885 and a succession of McPhail's held the job until the position went to her brother-in-law, A. L. Gilliland, in 1893 (McLeod 1983). United States Postal Service records in the National Archives indicate that the Inverness Post Office was officially established in 1854 and "discontinued" in March of 1860. The office was reestablished in 1870 and discontinued in 1912 (McLeod 1983:13). Contrary to McLeod family lore (McLeod 1983:8), the official lists of postmasters assigned to the Inverness Post Office, does not include Neill McLeod. The list does include dates of service for Katherine McLeod and Absalom L. Gilliland. Since the McLeod house was reportedly the location of the post office, at least for some time period between 1854 and 1912, it is possible that Neill acted as an unofficial postmaster from 1860 to 1870. While the postal records indicate that the Inverness Post Office was deactivated in March of 1860, the 1860 Federal Census records dated June, 1860, indicate the presence of a post office in the Western Division of Cumberland County, designated as "Inverness." In the census records, however, Neill McLeod is simply listed as a "Farmer" (*Population of the United States in 1860*, excerpts on file, Fort Bragg Cultural Resources Program).

The McLeod family history indicates that the Gillilands lived with two spinster sisters, Katherine and Martha McLeod in the old McLeod home "about a mile from the [McLeod] cemetery...on the south side of Little River and Tuckahoe Creek" (McLeod 1983:8). This description places the McLeod house well north of Manchester Road. McDuffie's Map of Cumberland County (1884) indicates that the Inverness Post Office was located approximately one-half mile south of the Lower Little River, near the mouth of Tuckahoe Creek (the approximate location of the McLeod cemetery), hence nearly two miles north of the Tower House site. The 1900 census records for Cumberland County (*Twelfth Census of the United States, 1900*, excerpts on file, Fort Bragg Cultural Resources Program) indicate that the A. L. Gilliland household included Absolom, Mary, their children and the two McLeod spinster sisters. The household grouping reflected in the census suggests that the "family" was probably still living together in the old McLeod home place at Inverness in 1900. Given the accuracy of the oral history and the supporting census data, it appears that the Tower house, where the occupation post-dates 1880-1885, was most likely occupied by tenants or sharecroppers. Alternately, A. L. Gilliland and his family may have had their own home built sometime after 1900. In that case, the Tower House site may have been the Gilliland family's last home before the establishment of Camp Bragg in 1918.

Although only six of the 31 STPs excavated on the Tower House site showed any significant evidence of subsurface disturbance to the natural soil column, few subsurface artifacts were recovered.

Soils in the undisturbed areas of the site are generally representative of the Candor Series. The site's intact soil profile consists of dark grayish brown, sandy humus, overlying an E-horizon of yellowish brown sand. The Bt-horizon is yellowish brown loamy or clayey sand. Where apparently undisturbed, the average depth of the A-horizon is 15 cm, while the Bt-horizon is generally evident between 55 and 80 cmbs. On the east side of the site, between STPs 1 and 3, the A-horizon generally ranges 11—18 cm in depth in undisturbed units. Alternately, the west side of the site, between STPs 4 and 5, the A-horizon generally ranges 20—26 cm deep in undisturbed units. The deeper A-horizon soils on the westerly portion of the site suggest the presence of a plow zone. As such, we believe that an agricultural field or large kitchen garden once existed west of the Tower House site.

Based on the low frequency of subsurface artifacts, potentially associated with features or other anthropogenic deposits, as well as the distinct lack of undisturbed, *in situ* architectural remains, the Tower House site will not likely produce additional data of archaeological or historic significance. Although soils on the site are generally undisturbed, historic period artifacts associated with the site's occupation before 1918 were primarily found only at or near the present surface. The site was surface collected in 1998, during the initial investigation, and again in 1999. The site was later revisited in 2000 after the gun position was roller chopped and burned. While subsequent revisits may produce some additional artifacts from surface contexts, the Tower House site (31HK695) is considered destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK696

Summary Data

Site Number: 31HK696
Site Name: Tower East
Cultural Component(s): Middle Archaic
County: Hoke
USGS 7.5' Quadrangle: Lobelia
UTM (NAD-27): Easting—0660150 Northing—3894130
Landform: Upland Flat
Elevation (Feet AMSL): 370
Slope Percent: 0-1
Slope Face: n/a
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Candor sand
Nearest Water (Meters): 340
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category V
Surface Visibility (Time of Survey): 35-100%
Surface Collected Artifacts: Yes
Positive STPs: 1
Negative STPs: 4
Approximate Site Size (Meters^2): 600
Observed Disturbance(s): Roads and trails, clear cutting, erosion, military excavations

The Middle Archaic period Tower East site was recorded and investigated during the LRAM survey of gun position Y-401 (Figures 21, 24 and 29). The site is located on an upland flat near the headwaters of two tributary streams. The site is approximately 340 m southwest of an unnamed James Creek tributary and 360 m northeast of an unnamed tributary of Tuckahoe Creek. Lithic debitage, biface tool fragments and one corner-notched projectile point fragment were recovered from the surface. The site, as defined by the surface distribution of artifacts, is crosscut by three sand trails that lead into the gun position from Inverness Road. A central STP and four 15-m interval radials, positioned in cardinal directions, were excavated in the center of the surface artifact distribution (Figure 29). The center STP produced a single metavolcanic late reduction flake from an apparently undisturbed E-horizon, but all excavated radials were negative. The same area was later re-shovel tested as part of the historic Tower House site (31HK695**) assessment. Twelve additional 15-m interval STPs were excavated in and around the Tower East site locale (Figure 24) and no additional prehistoric materials were recovered from a subsurface context.

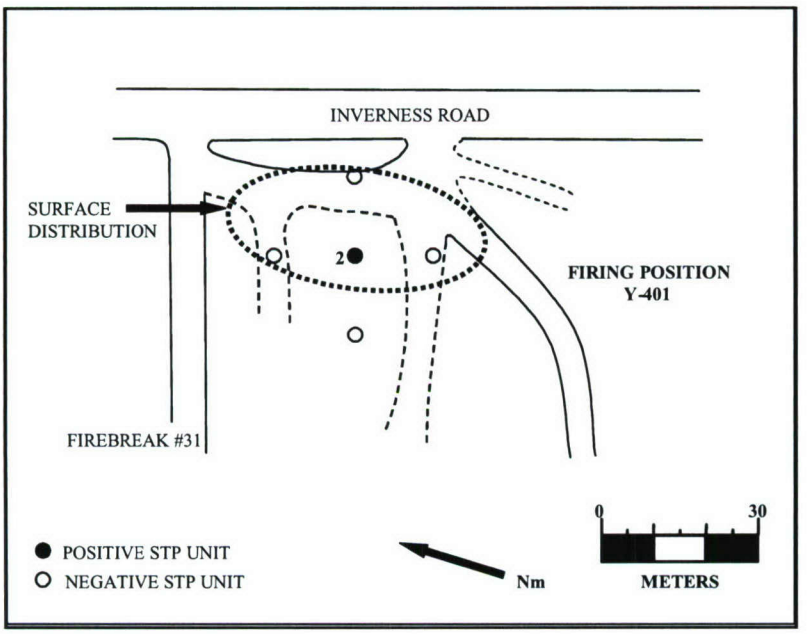

Figure 29. 31HK696 site plan from field sketch map showing approximate shovel test pit (STP) locations and surface artifact distribution.

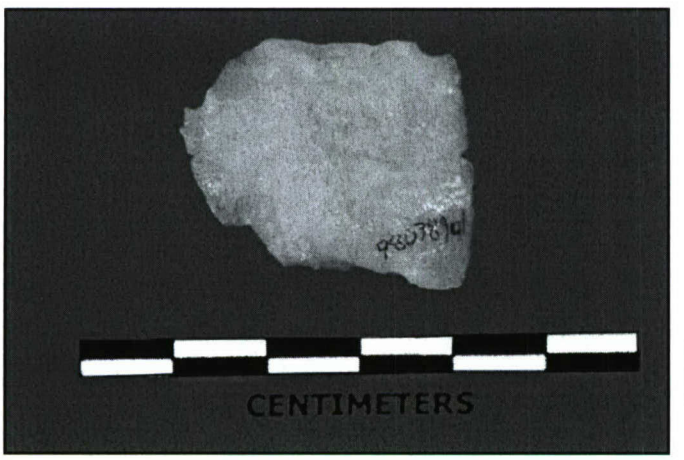

Figure 30. Corner-notched projectile point fragment from 31HK696.

The three quartz projectile point fragments found on the surface were refitted (Figure 30). The reassembled basal fragment, *sans* tip and stem, is of a semi-translucent-to-white quartz material and retains evidence of corner-notching. The fragment appears to be the base of a finished Kirk Corner-Notched type as classified and illustrated in Coe (1964:71). At present, the generally accepted date range for the Kirk sub-phase associated with corner-notched projectile points is approximately 8,000—6,300 B.C. (Chapman 1985; Eastman 1994; Justice 1987; Michie 1996; Sassaman 1996; Sassaman et al. 1990).

Compared to the frequency of quartz materials, metavolcanic debitage on the site is minimal. Two metavolcanic late reduction flakes and a single flake fragment were found. All three pieces are of aphyric material and are moderately-to-heavily patinated. The quartz tool and debitage assemblage consists of one late reduction flake and seven flake fragments. The quartz material is diverse in terms of quality, crystalline structure and color with both semi-translucent-to-white (55.6%) and finer milky quartz (44.4%) varieties represented in the assemblage. The metric and technological characteristics of the site's lithic assemblage are summarized in Tables 24 and 25. The diversity evident in the small assemblage is potentially indicative of multiple reduction episodes with variable materials over time. Since the majority of the identifiable lithic materials are late-stage flakes, reduction activities likely occurred on lithic materials partially reduced or otherwise prepared off-site. With the exception of the single Kirk Corner-Notched point fragment, no other temporally diagnostic artifacts were recovered.

Table 24. 31HK696 lithic tools and debitage classes sorted by raw material type.

	Projectile Point	**Late Reduction Flake**	**Flake Fragment**	**Totals**
Metavolcanic	-	2 (16.7%)	1 (8.3%)	3 (25.0%)
Quartz	1 (8.3%)	1 (8.3%)	7 (58.4%)	9 (75.0%)
Totals	1 (8.3%)	3 (25.0%)	8 (66.7%)	12 (100%)

Table 25. 31HK696 lithic debitage classes sorted by size categories.*

	≤ 1 cm	**> 1 ≤ 2 cm**	**> 2 ≤ 3 cm**	**Totals**
Metavolcanic	1 (9.1%)	1 (9.1%)	1 (9.1%)	3 (27.3%)
Quartz	-	7 (63.6%)	1 (9.1%)	8 (72.7%)
Totals	1 (9.1%)	8 (72.7%)	2 (18.2%	11 (100%)

*Does not include projectile point or firecracked rock.

Soils in the undisturbed areas of the site are generally representative of the Candor Series. The site's intact soil profile consists of dark grayish brown, sandy humus, overlying an E-horizon of yellowish brown sand. The Bt-horizon is yellowish brown loamy or clayey sand. Where apparently undisturbed, the average depth of the A-horizon ranges between 10 and 15 cmbs, while the Bt-horizon is generally evident between 44 and 60 cmbs. STP profiles observed in the initial site delineation and in the subsequent Tower House site STP survey (see above) indicate minimal subsurface disturbance except where sand trails exist. As all STPs, except STP-2, were

sterile of cultural materials, no further subsurface testing was undertaken. The Tower East site is considered a low-density site that will not likely produce additional significant data. Additionally, construction and use of the numerous sand trails that cross over the site have enhanced localized erosion. Since Bt-horizon soils are readily apparent on the trail surfaces, a significant portion of this spatially discrete (30-x-20-m) site has been destroyed. The site is not likely to produce additional significant archaeological data and is not eligible for inclusion to the NRHP. As such, no further work is recommended.

31HK697

Summary Data

Site Number: 31HK697
Site Name: OP-11 Isolate #2
Cultural Component(s): Prehistoric
County: Hoke
USGS 7.5' Quadrangle: Lobelia
UTM (NAD-27): Easting—0664960 Northing—3888350
Landform: Hilltop
Elevation (Feet AMSL): 260
Slope Percent: 6-7
Slope Face: N
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Vaucluse loamy sand
Nearest Water (Meters): 260
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category VI
Surface Visibility (Time of Survey): 90-100%
Surface Collected Artifacts: Yes
Positive STPs: 0
Negative STPs: 0
Approximate Site Size (Meters^2): 100
Observed Disturbance(s): Roads and trails, erosion, military excavations, Artillery Impact Area Buffer Zone

The prehistoric OP-11 Isolate #2 site, recorded and investigated during the LRAM survey of OP-11 (Artillery Observation Post), is located inside the 300 m "buffer zone" around Coleman Impact Area (Figure 31). The site is located on the northerly slope of a substantial upland hilltop, locally known as Gaddy's Mountain. The site is near the headwaters of Deep Creek, approximately 260 m west-northwest of the now dry stream head. Two metavolcanic primary flakes and eight pieces of meta-sedimentary core shatter were recovered. All specimens have frequent quartz and minor ferric inclusions. The debitage is moderately-to-heavily patinated and appears to be relatively homogenous in terms of color and structure. The coarse material is somewhat unusual in that it is not typically identified in lithic assemblages from the Sandhills. Compared to quartz or rhyolite, however, this stone is of low quality and fractures poorly. Although no known natural deposits of this material have been located on Fort Bragg, the stone may be

representative of a locally available resource. Metric characteristics of the site's lithic assemblage are summarized in Table 26.

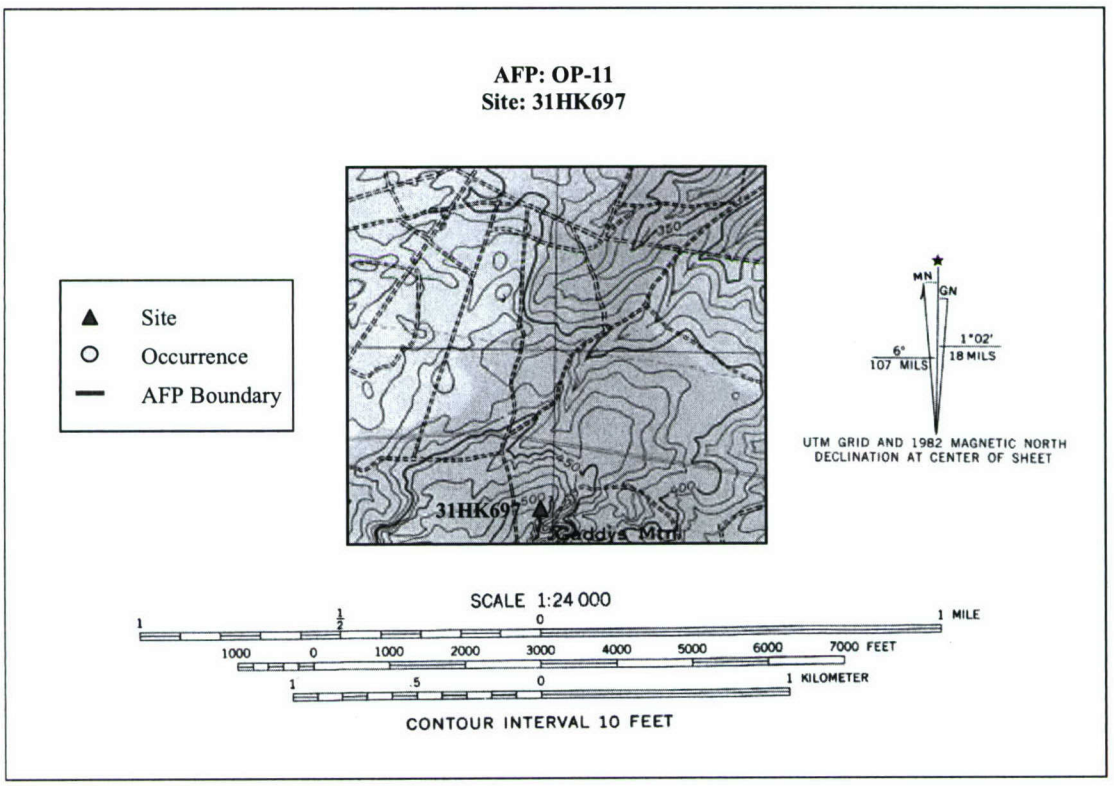

Figure 31. Detail of Lobelia Quadrangle showing location of 31HK697.

Table 26. 31HK697 lithic debitage classes sorted by size categories.

	≤ 1 cm	> 1 ≤ 2 cm	> 2 ≤ 3 cm	> 3 ≤ 4 cm	> 4 ≤ 5 cm	Totals
Metavolcanic	-	4 (40%)	-	1 (10%)	1 (10%)	2 (20%)
Metasedimentary	-	4 (40%)	2 (20%)	1 (10%)	1 (10%)	8 (80%)
Totals	-	4 (40%)	2 (20%)	2 (20%)	2 (20%)	10 (100%)

No temporally diagnostic artifacts were recovered. Materials from this spatially discrete (10 m^2) site may be related to the OP-11 Isolate #1 Occurrence (31HK847) which was recorded approximately 200 m to the south. Since the site is located in the buffer zone of an active artillery impact area, the potential presence of unexploded ordnance precludes subsurface testing of the locale. The general area of the site, however, shows evidence of significant subsurface disturbance from previous military training activities. A heavily utilized, unimproved road crosses the site area. Soils in the undisturbed areas of the

site are generally representative of the Vaucluse Series. The soil column is badly deflated or eroded with 90%+ surface exposure of the sandy-clay Bt-horizon soils. Based on the observed degree of surficial erosion and evidence of extensive military excavation, subsurface testing, even if possible, was deemed unnecessary. The OP-11 Isolate #2 site (31HK697) has been destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK698

Summary Data

Site Number: 31HK698
Site Name: Skanky Skink
Cultural Component(s): Middle Archaic
County: Hoke
USGS 7.5' Quadrangle: McCain
UTM (NAD-27): Easting—0655590 Northing—3880880
Landform: Hilltop
Elevation (Feet AMSL): 315
Slope Percent: 1-2
Slope Face: N-NE
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Lakeland sand
Nearest Water (Meters): 450
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category V
Surface Visibility (Time of Survey): 50-100%
Surface Collected Artifacts: Yes
Positive STPs: 1
Negative STPs: 7
Approximate Site Size (Meters^2): 1200
Observed Disturbance(s): Roads and trails, clear cutting, erosion, military excavations

The Middle Archaic period Skanky Skink site was recorded and investigated during the LRAM survey of gun position FF-101 (Figures 32—33). The site is located on a ridgeline hilltop, approximately 450 m north of Cabin Branch Creek; near it's confluence with Rockfish Creek to the southeast of the site. Lithic debitage, a projectile point fragment, two intermediate/late-stage biface fragments, a freehand core fragment and firecracked rock (n=1) were recovered from the surface. The site, as defined by the surface distribution of artifacts, is bordered on the north and east by sand trails. Two STP transects, with 10-m interval STPs, were excavated parallel to the north-south access road that bisects gun position FF-101, where soils appeared to be relatively undisturbed by the road cuts. While the soil column in the vicinity of all seven STPs appeared to be relatively intact, only one unit (T-1, STP-1) produced cultural materials, a quartz hammerstone and a quartz "mano." The quartz tools were recovered from the E-horizon soil at a depth of 20—40 cmbs.

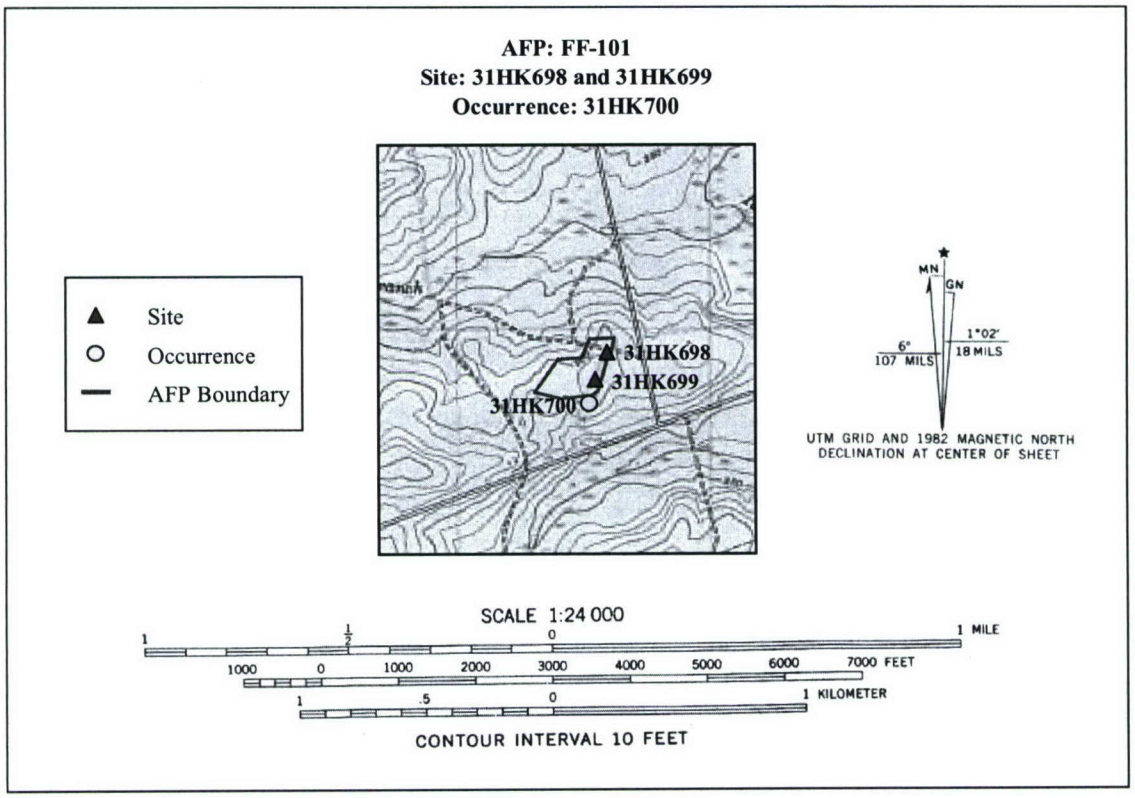

Figure 32. Detail of McCain Quadrangle showing locations of 31HK698, 31HK699 and 31HK700. Project area boundaries correlate with Artillery Firing Point (AFP) boundaries.

The basal portion of a repeatedly re-sharpened point was found (*sans* tip and lower stem) on the surface (Figure 34). The point is made of an aphyric metavolcanic material that is moderately patinated. Although the face of the tip break appears to be recent, the tip was not recovered. The stem break weathering is comparable to the patination on the worked surfaces of the tool, which suggests a pre-depositional use-break. The point form falls within the expected range of variation for the Stanly Stemmed type as classified and illustrated in Coe (1964:36). A second projectile point, perhaps better defined as a late-stage biface, was also recovered (Figure 33). This roughly stemmed specimen is made of a crystal quartz material and appears to be a late-stage Morrow Mountain I point, such as those originally classified and illustrated in Coe (1964:38). At present, the generally accepted date ranges for the Stanly and Morrow Mountain phases are approximately 6,600—5,000 B.C. (Anderson 1996) and 6,200—4,000 B.C. (Chapman 1985; Eastman 1994; Justice 1987; Larsen and Schuldenrein 1990), respectively.

A quartz combination mano/hammerstone and a quartz combination chopper/hammerstone were recovered from unit T-1, STP-1. The tools were near the top of a relatively undisturbed E-horizon. Both multifunctional pieces are made of smoky opaque, low-quality quartz that is "peppered" with impurities. The larger mano/hammerstone has a large oval grinding face and is end-battered from use as a hammerstone. The reduced edges exhibit numerous coarse flake scars and it possible that the surfaces were strategically reduced to produce rough finger grooves or finger grips. Such strategic reduction is commonly observed in mano stone production (Adams 2002:99). The smaller chopper/hammerstone has a crudely knapped, "bifacial" chopping edge that runs along the long axis of the cobble. The chopper is

end-battered from use as a hammerstone. The reduced sides exhibit a few rough flake scars and it possible that the surfaces were strategically reduced to produce rough finger grips (Adams 2002:153). Both tools show extensive use-alteration from use as multi-functional tools. Since these tools are of the same material and were recovered in such close association, the context is suggestive of purposeful caching behavior, possibly indicative of repeated short-term site habitation.

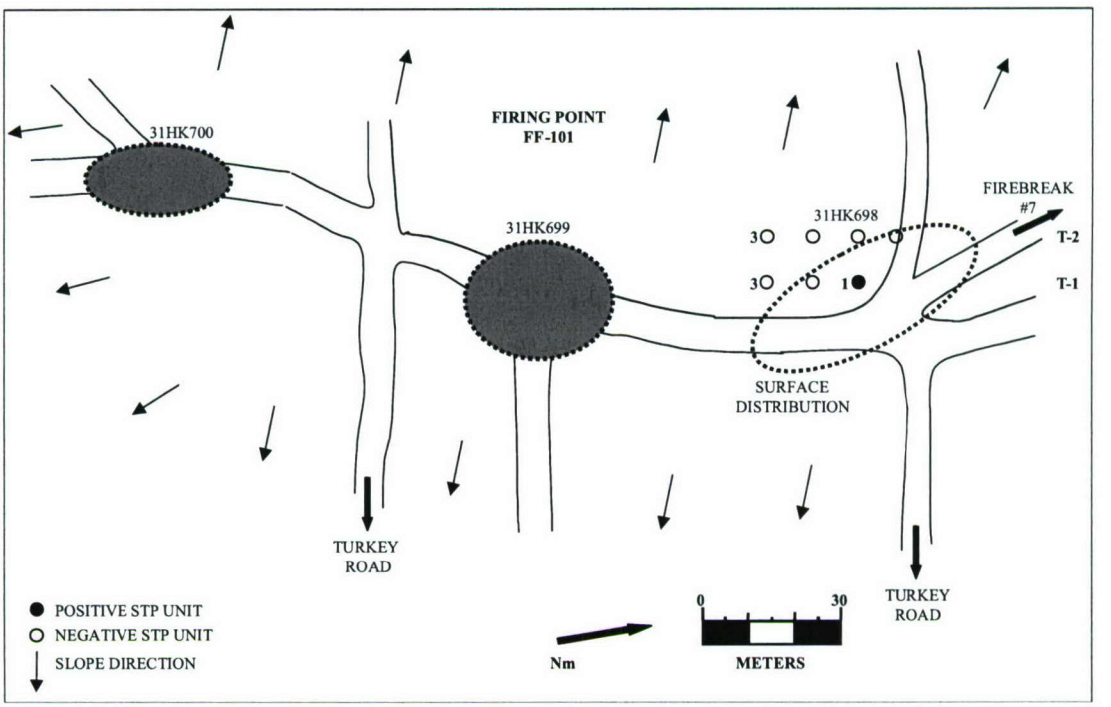

Figure 33. 31HK698 site plan from field sketch map showing approximate shovel test pit (STP) locations and surface artifact distribution.

The quartz materials are generally small (≤ = 2 cm) late-stage reduction flakes, while the metavolcanic materials are somewhat more diverse in terms of both size and reduction stage. With the metavolcanic debitage, there is size range diversity and both the late-stage core/biface fragment and early/late-stage reduction debitage well represented. All metavolcanic debitage is of an aphyric material and exhibits varying degrees of patination. The quartz material is highly variable in terms of quality, color and crystalline structure with semi-translucent-to-white varieties dominating the assemblage. Finer grade quartz materials fall well within the minority, but include four crystal, or near crystal, quartz late reduction flakes, one milky quartz late reduction flake and one milky quartz early reduction flake. The metric and technological characteristics of the site's lithic assemblage are summarized in Tables 27 and 28. Like the diversity evident in the assemblage of metavolcanic materials, the heterogeneity of the quartz material suggests multiple reduction episodes with variable materials over time. Since the majority of the identifiable lithic materials are re-sharpened tools, late-stage tools or late-stage reduction flakes, early reduction activities likely occurred on lithic materials partially reduced or otherwise prepared off-site.

Figure 34. Stemmed projectile point (left) and late-stage biface from 31HK698.

Table 27. 31HK698 lithic tools and debitage classes sorted by raw material type.

	Projectile Point/ Biface	Intermediate Biface (Fragment)	Chopper/Mano/ Hammerstone	Freehand Core	Early Reduction Flake	Late Reduction Flake	Flake Fragment	Core Shatter	Totals
Metavolcanic	1 (2.4%)	1 (2.4%)	-	1 (2.4%)	4 (9.5%)	13 (30.9%)	2 (4.8%)	-	22 (52.4%)
Quartz	1 (2.4%)	-	2 (4.8%)	-	1 (2.4%)	12 (28.4%)	2 (4.8%)	2 (4.8%)	20 (47.6%)
Totals	2 (4.8%)	1 (2.4%)	2 (4.8%)	1 (2.4%)	5 (11.9%)	25 (59.3%)	4 (9.6%)	2 (4.8%)	42 (100%)

Table 28. 31HK698 lithic debitage classes sorted by size categories.*

	≤ 1 cm	> 1 ≤ 2 cm	> 2 ≤ 3 cm	Totals
Metavolcanic	2 (5.6%)	8 (22.2%)	9 (25.0%)	19 (52.8%)
Quartz	3 (8.3%)	13 (36.1%)	1 (2.8%)	17 (47.2%)
Totals	5 (13.9%)	21 (58.3%)	10 (27.8%)	36 (100%)

*Does not include projectile point, biface, hammerstones, freehand core or firecracked rock.

Soils in the undisturbed areas of the site are generally representative of the Lakeland Series. The site's intact soil profile consists of dark grayish brown, sand humus, overlying a C1-horizon of yellowish brown sand. The C2-horizon is strong brown sand. Where apparently undisturbed, the average depth of the A-horizon is 8—16 cm deep, while the C2-horizon is generally evident between 50 and 70 cmbs. While the soils peripheral to the surface defined site are undisturbed, it appears that earlier construction of the north-south gun position access road destroyed the core of the site. As all STPs, except T-1, STP-1, were sterile of cultural materials, no further subsurface testing was undertaken. The Skanky Skink site is

considered destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK699

Summary Data

Site Number: 31HK699
Site Name: Upper Sassafras
Cultural Component(s): Prehistoric
County: Hoke
USGS 7.5' Quadrangle: McCain
UTM (NAD-27): Easting—0655540 Northing—3880780
Landform: Hilltop
Elevation (Feet AMSL): 315
Slope Percent: 0-1
Slope Face: n/a
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Candor sand
Nearest Water (Meters): 350
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category V/VI
Surface Visibility (Time of Survey): 90-100%
Surface Collected Artifacts: Yes
Positive STPs: 0
Negative STPs: 0
Approximate Site Size (Meters^2): 600
Observed Disturbance(s): Roads and trails, clear cutting, erosion, military excavations

The prehistoric Upper Sassafras site was recorded and investigated during the LRAM survey of gun position FF-101 (Figures 32—33). The site is located on a ridgeline hilltop, approximately 350 m north of Cabin Branch Creek, near it's confluence with Rockfish Creek just southeast of the site. Two biface fragments, lithic debitage and firecracked rock (n=3) were recovered from the surface. The majority of the artifacts are of metavolcanic material with quartz material poorly represented in the assemblage. The tool fragments consist of a metavolcanic biface midsection from a broad projectile point or blade and a metavolcanic biface base (probable Savannah River stemmed point). Both fragments exhibit heavy patination but appear to be of a similar aphyric material (fine-grained rhyolite). Although the pieces cannot be refitted, they may originate from the same projectile point. All metavolcanic debitage from the site is of an aphyric material and, with the exception of one lightly patinated flow-banded rhyolite flake, all of the flake debris is heavily weathered.

The metavolcanic debitage assemblage contains primary, early and late reduction flakes as well as numerous flake fragments. The quartz material is all of semi-translucent quartz and is variable in terms of quality, color and crystalline structure. The quartz debitage assemblage only contains late reduction

flakes, core shatter and a few flake fragments. Although it may be a sampling vagary, there is a distinct difference between the two broad lithic material types in terms of the debitage size and the reduction stages represented. The quartz materials are generally small (≤ = 2 cm) late-stage reduction flakes, while the metavolcanic materials are more diverse, with a greater size range (1—4 cm) with primary, early and late-stage reduction debitage well represented. The metric and technological characteristics of the site's lithic assemblage are summarized in Tables 29 and 30. Since the majority of the identifiable lithic materials are either late-stage tools or flakes, reduction activities primarily occurred on lithic materials partially reduced or otherwise prepared off-site.

Table 29. 31HK699 lithic tools and debitage classes sorted by raw material type.

	Projectile Point	**Late Stage Biface**	**Primary Reduction Flake**	**Early Reduction Flake**	**Late Reduction Flake**	**Flake Fragment**	**Core Shatter**	**Totals**
Metavolcanic	1 (1.6%)	1 (1.6%)	2 (3.2%)	12 (19.4%)	21 (34.0%)	16 (25.8%)	-	53 (85.6%)
Quartz	-	-	-	-	4 (6.4%)	4 (6.4%)	1 (1.6%)	9 (14.4%)
Totals	1 (1.6%)	1 (1.6%)	2 (3.2%)	12 (19.4%)	25 (40.4%)	20 (32.2%)	1 (1.6%)	62 (100%)

Table 30. 31HK699 lithic debitage classes sorted by size categories.*

	≤ 1 cm	**> 1 ≤ 2 cm**	**> 2 ≤ 3 cm**	**Totals**
Metavolcanic	5 (8.3%)	37 (61.7%)	9 (15.0%)	51 (85.0%)
Quartz	-	9 (15.0%)	-	9 (15.0%)
Totals	5 (8.3%)	46 (76.7%)	9 (15%)	60 (100%)

*Does not include projectile point, biface or firecracked rock.

Materials recovered from this spatially discrete (30-x-20-m) site may be related to the non-diagnostic Lower Sassafras Occurrence (31HK699) or the Middle Archaic period Skanky Skink site (31HK698), respectively located 80 m south and 100 m north on the same landform (Figure 25). The general area of the site shows extensive evidence of significant subsurface disturbance from previous military training activities. The specific location of the site, a washed out sand road is badly eroded with 95%+ surface exposure of the loamy Bt-horizon soils. Numerous sand trails crisscross the area of the occurrence. Based on the observed degree of surficial erosion and evidence of extensive military excavation, no subsurface testing was undertaken. The Upper Sassafras site is considered destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK858

Summary Data

Site Number: 31HK858
Site Name: Bunker Flat
Cultural Component(s): Prehistoric
County: Hoke
USGS 7.5' Quadrangle: Overhills
UTM (NAD-27): Easting—0 671780 Northing—3889385
Landform: Upland Slope
Elevation (Feet AMSL): 410
Slope Percent: 6-7
Slope Face: W
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Lakeland
Nearest Water (Meters): 160
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category V/VI
Surface Visibility (Time of Survey): 80-100%
Surface Collected Artifacts: Yes
Positive STPs: 1
Negative STPs: 3
Approximate Site Size (Meters^2): 500
Observed Disturbance(s): Roads and trails, clear cutting, erosion, military excavations

The prehistoric Bunker Flat site was recorded and investigated during the LRAM survey of gun position M-101 (Figures 35-36). The site is located on the westerly trending slope of an upland flat near the head of an unnamed Jumping Run Creek tributary. The central area of the site is situated approximately 160 m southeast of the stream head. Ten pieces of lithic debitage were recovered from the surface of the site. A central STP (STP-1) and three 15-m interval radials, positioned in cardinal directions, were excavated within the surface scatter area. The central STP produced one quartz flake fragment from the highly disturbed upper stratum, but the three excavated radial units were negative. A fourth radial STP (south radial), located in a highly disturbed and obviously deflated portion of the site, was not excavated.

Compared to the frequency of quartz material, metavolcanic debitage on the site is minimal. Two aphyric metavolcanic flake fragments with little evidence of weathering were found on the surface. The quartz debitage assemblage contains both early and late reduction flakes as well as numerous flake fragments. The quartz material is diverse in terms of quality, crystalline structure and color with both semi-translucent-to-white and finer quality milky quartz varieties represented in the assemblage. The metric and technological characteristics of the site's lithic assemblage are summarized in Tables 31 and 32. The diversity of quartz material suggests multiple reduction episodes with variable materials over time, or perhaps a chronologically discrete re-tooling episode involving materially diverse tool-kits.

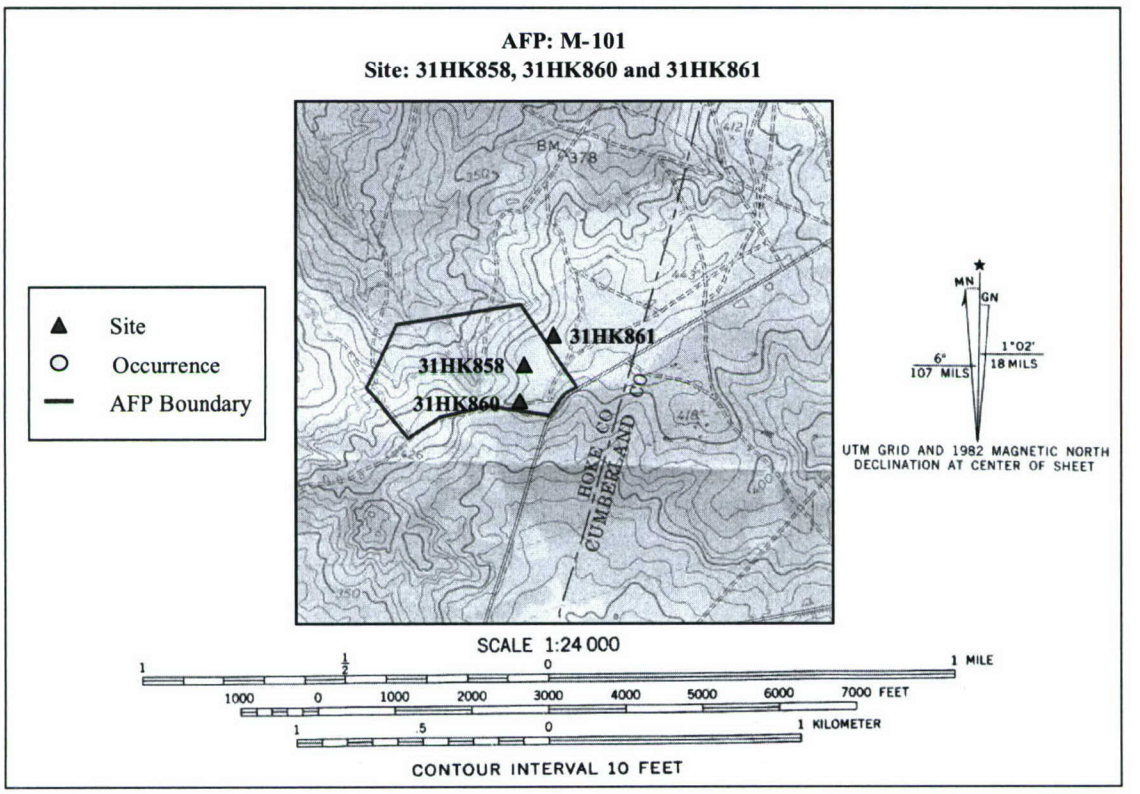

Figure 35. Detail of Overhills Quadrangle showing locations of 31HK858, 31HK860 and HK861. Project area boundaries correlate with Artillery Firing Point (AFP) boundaries.

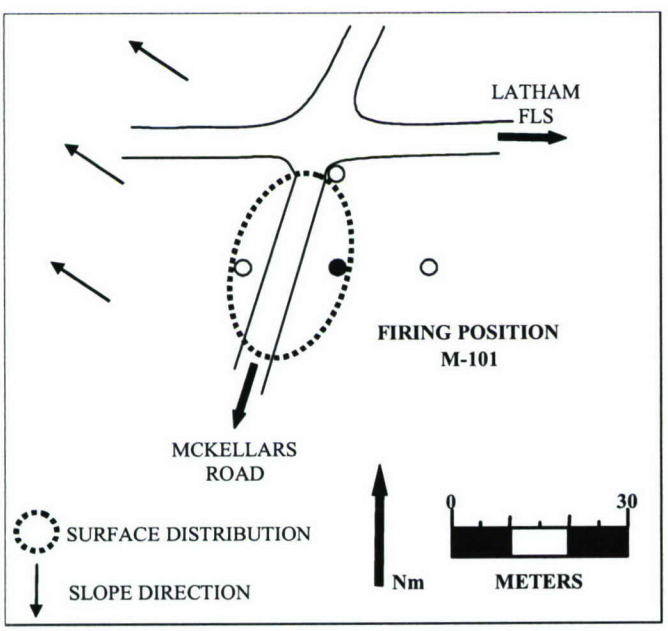

Figure 36. 31HK858 site plan from field sketch map showing approximate shovel test pit (STP) locations and surface artifact distribution.

Since the majority of the functionally identifiable lithic materials are late-stage reduction flakes, reduction activities primarily occurred on lithic materials partially reduced or otherwise prepared off-site. Although the recovered lithic materials indicate some limited prehistoric tool manufacturing activity in the area, no temporally diagnostic artifacts were recovered. Materials recovered from this spatially discrete (20-x-10-m) site may be related to the Bunker Hill site that is located approximately 75 m to the east. Unfortunately, no chronologically diagnostic materials were recovered from either of these potentially related sites.

Table 31. 31HK858 lithic tools and debitage class sorted by raw material type.

	Early Reduction Flake	**Late Reduction Flake**	**Flake Fragment**	**Totals**
Metavolcanic	-	-	2 (20%)	2 (20%)
Quartz	1 (10%)	3 (30%)	4 (40%)	8 (80%)
Totals	1 (10%)	3 (30%)	6 (60%)	10 (100%)

Table 32. 31HK858 lithic debitage classes sorted by size categories.

	≤ 1 cm	**> 1 ≤ 2 cm**	**> 2 ≤ 3 cm**	**Totals**
Metavolcanic	-	1 (10%)	1 (10%)	2 (20%)
Quartz	-	4 (40%)	4 (40%)	8 (80%)
Totals	-	5 (50%)	5 (50%)	10 (100%)

Soils in the undisturbed areas of the site are generally representative of the Lakeland Series. The site's intact soil profile consists of dark grayish brown, sand humus, overlying a C1-horizon of yellowish brown sand. The C2-horizon is strong brown sand. Where apparently undisturbed, the average depth of the A-horizon is 10-14cm, while the C2-horizon is generally evident between 30 and 35cmbs. Three of the four STPs exhibited subsurface disturbances that ranged from 33—47 cmbs. The specific locale of the site shows extensive surficial evidence of subsurface disturbance from previous military training activities. The site is generally disturbed or deflated with 80% surface exposure of C2-horizon soils in most areas (including the road surface) of the site. Based on the degree of surficial erosion and evidence of extensive military excavations, no further subsurface testing was undertaken. The Bunker Flat site (31HK858) is considered destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK860

Site Data

Site Number: 31HK860
Site Name: Jack
Cultural Component(s): Prehistoric
County: Hoke
USGS 7.5' Quadrangle: Overhills
UTM (NAD-27): Easting—0671760 Northing—3889260
Landform: Upland Slope
Elevation (Feet AMSL): 405
Slope Percent: 4-5
Slope Face: W-SW
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Lakeland
Nearest Water (Meters): 200
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category V/VI
Surface Visibility (Time of Survey): 80-100%
Surface Collected Artifacts: Yes
Positive STPs: 0
Negative STPs: 3
Approximate Site Size (Meters^2): 375
Observed Disturbance(s): Roads and trails, clear cutting, erosion, military excavations
NRHP Eligibility Recommendation: Ineligible

The prehistoric Jack site was recorded and investigated during the LRAM survey of gun position M-001 (Figures 35 and 37). The site is located on the southwesterly trending slope of an upland flat near the head of an unnamed Jumping Run Creek tributary. The central area of the site is situated approximately 250 m southeast of the stream head. A retouched flake, nine pieces of lithic debitage and a single piece of firecracked quartzite were recovered from the surface of the site. As the surface scatter was found to be restricted to the north shoulder area of an existing sand road, a shovel test transect, bisecting the surface defined site, was positioned with three, 15-m interval, STPs. Although soils in the immediate site area (peripheral to the road cut) showed only low-to-moderate levels of disturbance, all STPs were negative.

The retouched flake tool, an end scraper made from a biface thinning flake, is of semi-translucent-to-milky white quartz (Figure 38). Compared to the frequency of quartz material, metavolcanic debitage on the site is minimal. The quartz debitage assemblage contains both early and late reduction flakes as well as a quantity of flake fragments. Both semi-translucent-to-white and milky quartz varieties are included in the small assemblage of flakes. The assemblage's single metavolcanic late reduction flake is of an aphyric material and exhibits moderate patination. The metric and technological characteristics of the site's lithic assemblage are summarized in Tables 33 and 34. The diversity of the lithic material is indicative of multiple reduction episodes with variable materials over time. Since the majority of the identifiable lithic materials are either early or late-stage reduction flakes, reduction activities primarily occurred on lithic materials partially reduced or otherwise prepared off-site.

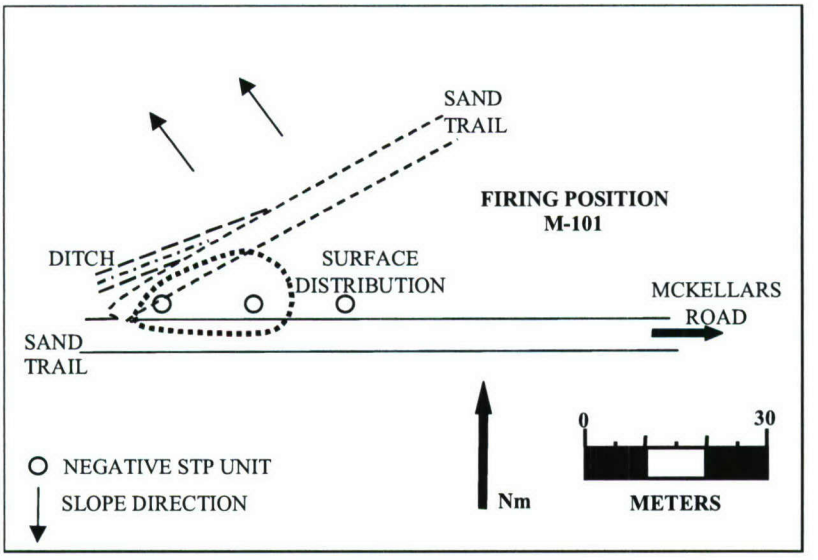

Figure 37. 31HK860 site plan from field sketch map showing approximate shovel test pit (STP) locations and surface artifact distribution.

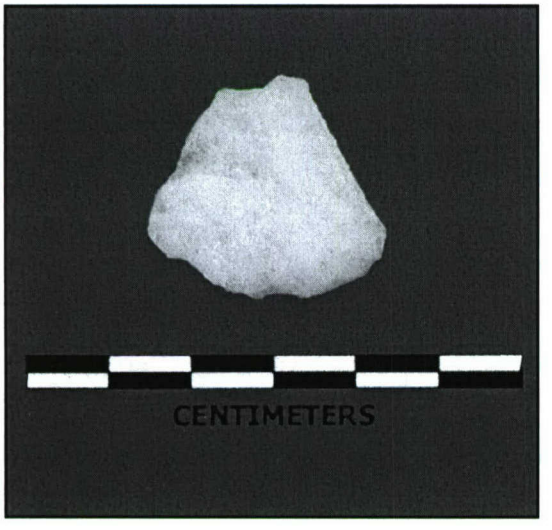

Figure 38. Retouched flake tool from 31HK860.

While the recovered lithic materials suggest some limited prehistoric tool manufacturing activity in the area, no temporally diagnostic artifacts were recovered. Materials recovered from this spatially discrete (15-x-25-m) site may be related to the prehistoric Bunker Flat site (31HK858) that is located approximately 250 m to the north-northeast on the same landform. Unfortunately, no chronologically diagnostic materials were recovered from either of these potentially related sites. However, in an unrelated peripheral survey, adjacent to gun position M-001, an Early Archaic period, Kirk Corner-

Notched projectile point was recovered from the surface of the sand road approximately 75 m west of the Jack site concentration.

Table 33. 31HK860 lithic tools and debitage classes sorted by raw material type.

	Retouched Flake Tool	Early Reduction Flake	Late Reduction Flake	Flake Fragment	Totals
Metavolcanic	-	-	1 (10%)	-	1 (10%)
Quartz	1 (10%)	4 (40%)	2 (20%)	2 (20%)	9 (90%)
Totals	1 (10%)	4 (40%)	3 (30%)	2 (20%)	10 (100%)

Table 34. 31HK860 lithic debitage classes sorted by size categories.*

	≤ 1 cm	> 1 ≤ 2 cm	> 2 ≤ 3 cm	Totals
Metavolcanic	-	-	1 (11.1%)	1 (11.1%)
Quartz	1 (11.1%)	3 (33.3%)	4 (44.5%)	8 (88.9%)
Totals	1 (11.1%)	3 (33.3%)	5 (55.6%)	9 (100%)

*Does not include retouched flake or firecracked rock.

Soils in the undisturbed areas of the site are generally representative of the Lakeland Series. The site's intact soil profile consists of dark grayish brown, sand humus, overlying a C1-horizon of yellowish brown sand. The C2-horizon is strong brown sand. Where apparently undisturbed, the average depth of the A-horizon is 12—15 cm, while the C2-horizon is generally evident between 50 and 55 cmbs. The general locale of the site does show surficial evidence of subsurface disturbance from previous military training activities. The areas peripheral to the site are generally disturbed or deflated with 80% surface exposure of C2-horizon soils. While relatively intact soils are found within the site locale, it appears that the construction of the sand road destroyed the core of the site. As all STPs were sterile of cultural material, no further subsurface testing was undertaken. The Jack site is considered destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK861

Site Data

Site Number: 31HK861
Site Name: Bunker Hill
Cultural Component(s): Prehistoric
County: Hoke
USGS 7.5' Quadrangle: Overhills
UTM (NAD-27): Easting—0671890 Northing—3889530
Landform: Upland Slope
Elevation (Feet AMSL): 420
Slope Percent: 2-3
Slope Face: W-SW
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Lakeland
Nearest Water (Meters): 200
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category V/VI
Surface Visibility (Time of Survey): 80-100%
Surface Collected Artifacts: Yes
Positive STPs: 0
Negative STPs: 0
Approximate Site Size (Meters^2): 1250
Observed Disturbance(s): Roads and trails, clear cutting, erosion, military excavations
NRHP Eligibility Recommendation: Ineligible

The prehistoric Bunker Hill site was recorded and investigated during the LRAM survey of gun position M-101 (Figure 35). The site is located on the westerly trending slope of an upland flat near the head of an unnamed Jumping Run Creek tributary. The central area of the site is situated approximately 200 m southeast of the stream head. Eight pieces of lithic debitage were recovered from the surface of the site. Random STPs excavated both within and outside of the surface artifact concentration exhibited a disturbed soil column in excess of one meter below surface. Based on the degree of surficial erosion and evidence of extensive military excavations, no further subsurface testing was undertaken.

Compared to the frequency of quartz materials, metavolcanic debitage on the site is minimal. There are two metavolcanic flake fragments in the assemblage. Both specimens appear to be of similar material, but are heavily patinated. The quartz debitage assemblage contains both early and late reduction flakes as well as a few flake fragments. While two of the late reduction flakes are of the distinctive milky quartz, the balance of the quartz material is of the semi-translucent-to-white variety. The metric and technological characteristics of the site's lithic assemblage are summarized in Tables 35 and 36. Since the majority of the identifiable lithic materials are late-stage flakes, reduction activities primarily occurred on lithic materials partially reduced or otherwise prepared off-site. While the recovered lithic assemblage reflects evidence of limited tool re-sharpening or core reduction activities, no temporally diagnostic artifacts were recovered.

Table 35. 31HK861 lithic tools and debitage classes sorted by raw material type.

	Early Reduction Flake	Late Reduction Flake	Flake Fragment	Totals
Metavolcanic	-	-	2 (25%)	2 (25%)
Quartz	1 (12.5%)	3 (37.5%)	2 (25%)	6 (75%)
Totals	1 (12.5%)	3 (37.5%)	4 (50%)	8 (100%)

Table 36. 31HK861 lithic debitage classes sorted by size categories.*

	≤ 1 cm	> 1 ≤ 2 cm	> 2 ≤ 3 cm	> 3 ≤ 4 cm	Totals
Metavolcanic	-	-	-	2 (25%)	2 (25%)
Quartz	-	2 (25%)	4 (50%)	-	6 (75%)
Totals	-	2 (25%)	4 (50%)	2 (25.0%)	8 (100%)

Materials recovered from this low-density site may be related to the Bunker Flat site (see above) located approximately 75 m to the west. Unfortunately, no chronologically diagnostic materials were recovered from either of these two potentially related sites. Soils on the site are generally representative of the Lakeland Series, but are completely deflated and/or disturbed. The specific site locale shows surficial evidence of extensive subsurface disturbance from previous military training activities with apparent evidence of past artillery firebase construction. The area is generally disturbed or deflated with 95%+ surface exposure of sandy C2/C3-horizon soils. The Bunker Hill site is considered destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK863

Summary Data

Site Number: 31HK863
Site Name: HH101A
Cultural Component(s): Middle Archaic and Early 20th Century Historic
County: Hoke
USGS 7.5' Quadrangle: Nicholson Creek
UTM (NAD-27): Easting—0660975 Northing—3883400
Landform: Upland Flat
Elevation (Feet AMSL): 405
Slope Percent: 0-1
Slope Face: n/a
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Candor sand
Nearest Water (Meters): 200
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category V/VI
Surface Visibility (Time of Survey): 75-100%
Surface Collected Artifacts: Yes
Positive STPs: 1
Negative STPs: 4
Approximate Site Size (Meters^2): Archaic = 2400 Historic = Isolate
Observed Disturbance(s): Roads and trails, clear cutting, erosion, military excavations

The Archaic period and early 20th century HH101A site was recorded and investigated during the LRAM survey of gun position HH101 (Figures 20 and 39). The multi-component site (originally recorded as two separate sites, the HH101A and HH101 B sites) is located on an upland flat near the headwaters of an unnamed tributary of Juniper Creek. The site is approximately 200 m north-northeast of the stream head. One partial projectile point, two biface fragments, lithic tools and debitage were recovered from the surface. A central STP and four 15-m interval radials, positioned in cardinal directions, were excavated in the center of the site area as defined by the surface distribution. The easternmost STP (STP-4) produced three metavolcanic flakes and modern glass sherds, but all other units were negative. Soils observed in STP-4, however, were badly disturbed down to 85 cmbs and the modern glass sherds were recovered approximately 20—30 cm below the prehistoric materials.

The surface recovered projectile point is of semi-translucent quartz with a side-notched base (Figure 40) that appears roughly fluted on one side. The blade is rather squat (29-x-26-cm) and broad which suggests extensive re-sharpening. While somewhat crude, especially compared to other examples from the Sandhills, the point appears to have originally been a Hardaway Side-Notched type. Although it is difficult to say with certainty, since a portion of the base is missing, the point form appears to fall within the expected range of variation for the Hardaway Side-Notched type as classified and illustrated in Coe (1964:68). At present, the generally accepted date range for the Hardaway sub-phase associated with side-notched projectile points is approximately 8,000—6,000 B.C. (Anderson et al. 1996; Daniel 1994, 1998; Driskell 1996; Justice 1987).

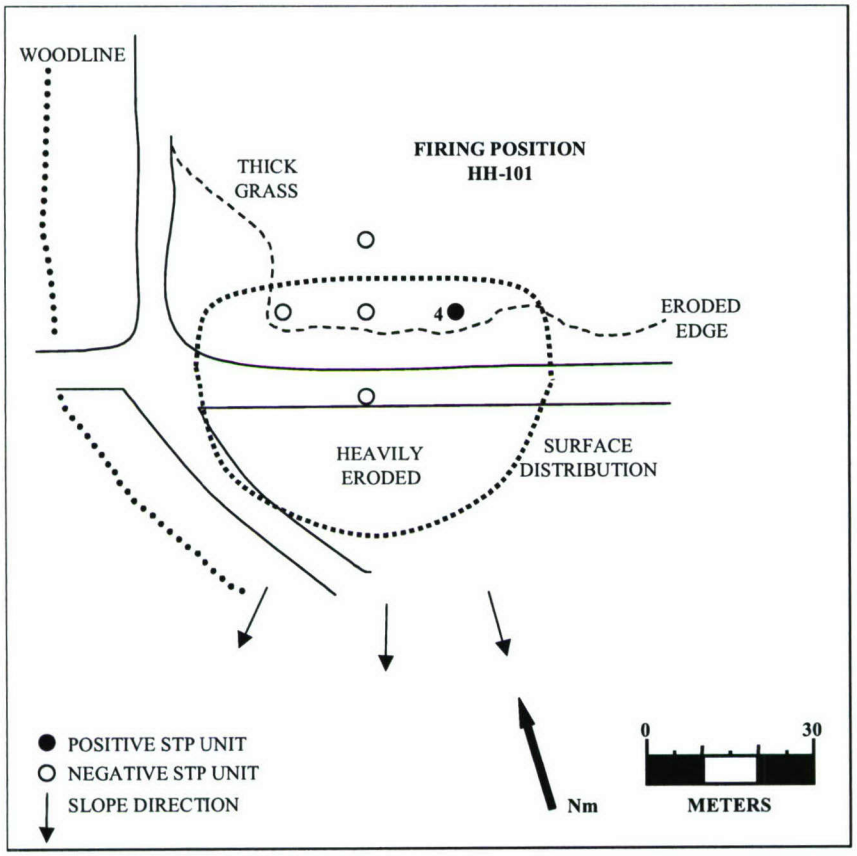

Figure 39. 31HK863 site plan from field sketch map showing approximate shovel test pit (STP) locations and surface artifact distribution.

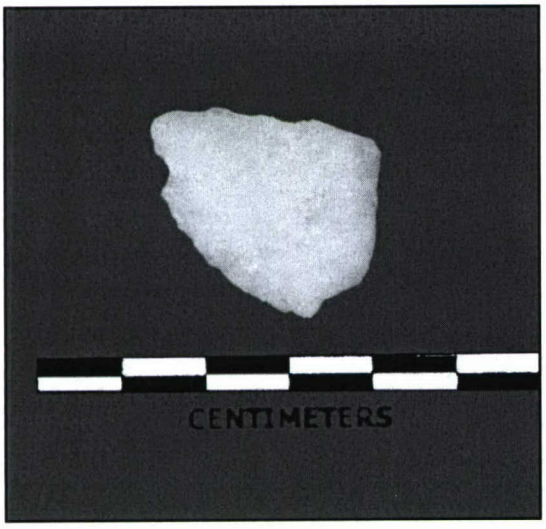

Figure 40. Side-notched projectile point from 31HK863.

A biface base of a semi-translucent quartz material that most probably represents the base of a Guilford type point or knife was also recovered. The basal fragment compares well with other Guilford points recovered on Fort Bragg and those originally classified and illustrated in Coe (1964:40). At present, the generally accepted date range for the Guilford phase is approximately 5,000—3,000 B.C. (Chapman 1985; Justice 1987; Sassaman 1990). Two metavolcanic biface fragments (tip and base portions) were also recovered, but they retain no specifically diagnostic attributes. The metavolcanic tip portion is of a finer-grained aphyric material while the midsection fragment is of a plagioclase porphyritic material. Since no Woodland period ceramic sherds were found on the site, it is probable that both fragments are from Archaic period projectile points or blades.

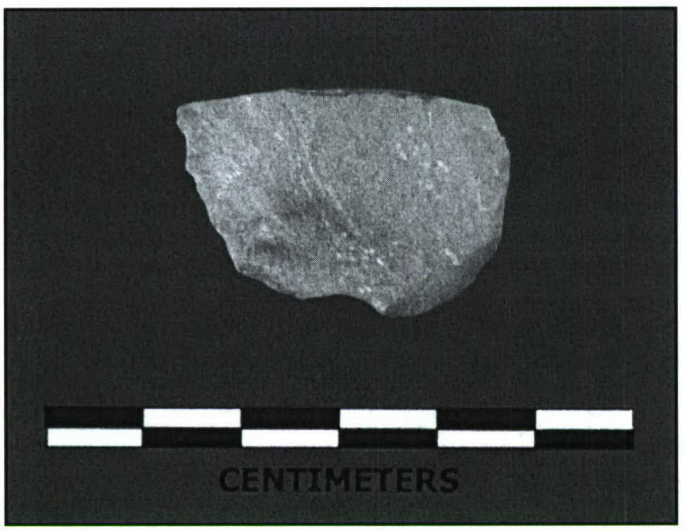

Figure 41. Retouched flake tool from 31HK863.

Other tools from the site include a unifacially retouched metavolcanic flake of fine-grained aphyric material (Figure 41) and a well ground, quartzite grinding stone fragment. Although quartz material dominates the debitage assemblage, the metavolcanic material is rather diverse with examples of aphyric, flow-banded aphyric, flow-banded porphyritic and plagioclase porphyritic varieties all represented. With the exception of one lightly patinated, flow-banded rhyolite flake, all of the metavolcanic flakes and flake fragments are heavily weathered. The metavolcanic debitage assemblage contains primary flakes (16.7%), early reduction flakes (25%), late reduction flakes (33.3%), as well as a quantity of flake fragments (25%). While lower quality semi-translucent-to-white quartz materials are predominant in the quartz debitage assemblage (n=46, 80.7%), a small quantity of finer grade varieties are present, including near crystal (n=7, 12.3%) and milky quartz (n=4, 7.0%) types. The quartz debitage assemblage includes early reduction flakes (21%), late reduction flakes (33.3%), core shatter (8.8%), a rough free-hand core (1.8%) and numerous flake fragments (35.1%). The metric and technological characteristics of the site's lithic assemblage are summarized in Tables 37 and 38.

The overall variability in the site's lithic material assemblage is likely indicative of multiple tool reduction episodes with differential materials. Since the majority of the identifiable lithic materials are either late-stage tools or flakes, reduction activities primarily occurred on lithic materials partially reduced or otherwise prepared off-site. However, the presence of large quartz shatter fragments and metavolcanic primary reduction flakes, while of comparatively low frequency, suggests that some on-site tool-making was accomplished through the use of either large weathered nodules or river cobbles of metavolcanic and quartz materials. Given the upland setting and the obvious lack of prehistoric ceramics,

occupations on the site appear to have been restricted to the Archaic period. The diagnostic attributes of the site's two biface fragments further suggest that human activities on the site took place in the Early and early Middle Archaic periods.

Table 37. 31HK863 lithic tools and debitage classes sorted by raw material type.

	Projectile Point/ Biface	Retouched Flake Tool	Freehand Core	Primary Reduction Flake	Early Reduction Flake	Late Reduction Flake	Flake Fragment	Core Shatter	Totals
Metavolcanic	2 (2.7%)	1 (1.4%)	-	2 (2.7%)	3 (4.1%)	4 (5.4%)	3 (4.1%)	-	15 (20.4%)
Quartz	2 (2.7%)	-	1 (1.4%)	-	12 (16.2%)	19 (25.6%)	20 (27%)	5 (6.7%)	59 (79.6%)
Totals	4 (5.4%)	1 (1.4%)	1 (1.4%)	2 (2.7%)	15 (20.3%)	23 (31%)	23 (31.1%)	5 (6.7%)	74 (100%)

*Does not include quartzite hammerstone fragment.

Table 38. 31HK863 lithic debitage classes sorted by size categories.*

	≤ 1 cm	> 1 ≤ 2 cm	> 2 ≤ 3 cm	> 3 ≤ 4 cm	> 4 ≤ 5 cm	> 5 ≤ 6 cm	> 6 ≤ 7 cm	Totals
Metavolcanic	3 (4.4%)	3 (4.4%)	2 (2.9%)	1 (1.5%)	2 (2.9%)	-	1 (1.5%)	12 (17.6%)
Quartz	-	37 (54.4%)	14 (20.6%)	4 (5.9%)	1 (1.5%)	-	-	56 (82.4%)
Totals	3 (4.4%)	40 (58.8%)	16 (23.5%)	5 (7.4%)	3 (4.4%)	-	1 (1.5%)	68 (100%)

*Does not include projectile point, biface, retouched flake, hammerstone, freehand core or firecracked rock.

In addition to prehistoric artifacts, a quantity of historic sherds was recovered from the surface. The three historic ceramic sherds recovered on the site are from a "turpentine cup," produced by the Herty Turpentine Cup Company after 1903 (Butler 1998). Such cups were used by naval stores producers to collect longleaf pine gum (resin), which was collected in barrels and transported to Fayetteville area distilleries where the gum was distilled to produce turpentine and other related products (Butler 1998; Parker 1990). The general location of the site falls within the boundaries of an 825-acre property (Tract 463) owned by the Campbell Estate heirs in 1918 (Sirrine 1919). The historic material collected at this site is an incidental occurrence and likely relates to the Postbellum occupations and naval stores operations associated with the Campbell family house (31HK688) or HH101C (31HK864) sites. The date range of the historic ceramic sherds is consistent with other materials recovered from the HH101C site (see below) where additional Herty cup sherds were recovered.

Only one of the five STPs excavated on the HH101A site was found to be relatively undisturbed. Soils in the undisturbed area of the site are generally representative of the Candor Series. The site's intact soil profile consists of dark grayish brown, sandy humus, overlying an E-horizon of yellowish brown sand. The Bt-horizon is yellowish brown loamy or clayey sand. Where apparently undisturbed, the depth of the A-horizon is 15—20 cmbs, while the Bt-horizon is generally evident between 60 and 65 cmbs. Two of the five excavated STPs demonstrated badly disturbed soils down to 75 and 85 cmbs. The general area of the spatially associated prehistoric site and historic occurrence shows extensive evidence of significant subsurface disturbance and soil column homogenization from previous military training activities and is badly eroded with 90%+ surface exposure of the somewhat clayey C2-horizon soils.

Due to the observed degree of surficial erosion and significant evidence of military excavation disturbances, no further subsurface testing was undertaken. Based on the low frequency of subsurface artifacts, potentially associated with features or other anthropogenic deposits, and the distinct lack of undisturbed, *in situ* architectural remains, the HH101A site will not likely produce additional data of archaeological or historic significance. While subsequent revisits may produce some additional artifacts from a surface context, the site is considered destroyed and not likely to produce additional significant archaeological data. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK864

Summary Data

Site Number: 31HK864
Site Name: HH101C
Cultural Component(s): Prehistoric and Early 20th Century Historic
County: Hoke
USGS 7.5' Quadrangle: Nicholson Creek
UTM (NAD-27): Easting—0661080 Northing—3883410
Landform: Upland Flat
Elevation (Feet AMSL): 405
Slope Percent: 0-1
Slope Face: n/a
Natural Plant Communities: Xeric Sandhill Scrub (extensively altered)
Soil Type: Candor sand
Nearest Water (Meters): 300
Type: Tributary stream (r = 1)
Site Conditions (Time of Survey): Category V/VI
Surface Visibility (Time of Survey): 75-100%
Surface Collected Artifacts: Yes
Positive STPs: 3
Negative STPs: 13
Approximate Site Size (Meters^2): Prehistoric = 1350 Historic = 4000
Observed Disturbance(s): Roads and trails, clear cutting, erosion, military excavations, LZ construction

The prehistoric and historic HH101C site was recorded and investigated during the LRAM survey of gun position HH101 (Figures 20 and 42). The multi-component site is located on an upland flat near the headwaters of an unnamed tributary of Nicholson Creek. The site is approximately 300 m west-southwest of the stream head. The general location of the site falls within the boundaries of an 825-acre property (Tract 463) owned by the Campbell Estate heirs in 1918 (Sirrine 1919). A 1918 soil survey map of Hoke County (USDA 1918) shows a single structure in the general vicinity of the HH101C site, less than 75 m west of the historic Raeford and Vass Road. The site's historic artifact assemblage content is consistent with a post-Civil War occupation and is similar, although less diverse, to the Tower House site (31HK695) assemblage described in this report. Since the Antebellum/Postbellum period Campbell home place (31HK688) was located some 400—500 m north, at Campbell's Crossroads, it is probable that a post-Civil War tenant or sharecropper family inhabited the HH101C site. Further archival research is

needed to establish the potential familial connections of the site's occupants. Forty-eight historic ceramic sherds, 63 glass container fragments, and numerous architectural artifacts were recovered from the surface of the site.

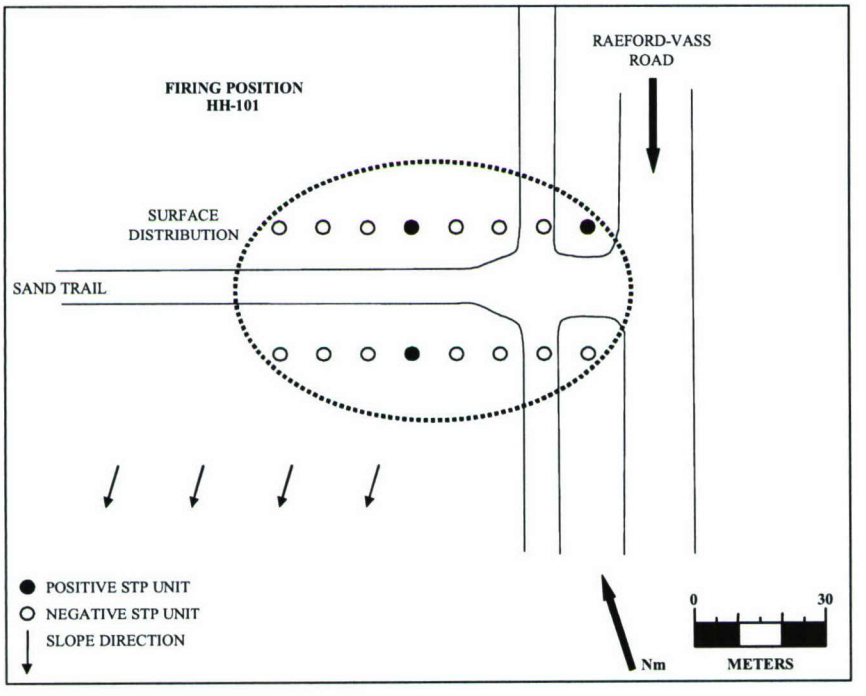

Figure 42. 31HK864 site plan from field sketch map showing approximate shovel test pit (STP) locations and surface artifact distribution.

Sixteen STPs, oriented along two 10-m interval east-west transects, were excavated across the site area as defined by the limits of the surface artifact distribution. The transects were positioned parallel to the north and south sides of a wide sand road that bisects the surface defined site boundaries. Only three STPs produced subsurface prehistoric/historic materials (T-1, STP-1; T-1, STP-5; T-2, STP-5) and no evidence of *in situ* surface or subsurface architectural features was observed. Soil profiles observed in 10 of the 16 STPs, including all three positive units, were found to be badly disturbed in excess of 30 cmbs while five of the remaining six STPs exhibited varying degrees of disturbance from 15—30 cmbs. Based on these observations, as well as readily observable surface erosion and soil disturbances, it is apparent that the site has been completely destroyed by artillery firebase construction and other military training activities that disturbed artifact deposits to depths in excess of 95 cmbs in some areas of the site. The site locale has been completely clear-cut and surface erosion across the central portion of the gun position is extensive.

The recovered historic artifact assemblage is indicative of a small historic habitation site, most probably a post-Civil War farmstead site (Tables 39 and 40). The ceramics are generally rather nondescript, plain whiteware, ironstone, porcelain and stoneware sherds that exhibit no specifically dateable decorative designs or makers' marks (Table 39 and Figure 43). A foot ring from the base of a large, whiteware serving vessel was found to retain the partial printed mark "CHINA," but the incomplete mark cannot be specifically attributed to one particular manufacturer. A second basal sherd retains the partial marks "W. H..." and "ENG," which indicates a maker's mark that included "ENGLAND" in the print. The use of "England," indicative of the country of origin, first appeared around 1880, but was later mandated for

English export ceramics shipped to the United States in 1891 (Kovel and Kovel 1986:229). Of the 39 household ceramic sherds recovered, approximately 69.2% of the assemblage is either plain whiteware or ironstone tableware, while other ceramic types fall well within the minority (stoneware 20.5%; porcelain = 10.3%). Only six whiteware rim sherds from flat tableware are decorated. These sherds appear to be from the same plate (or matched set of plates) and incorporate an edge molded "dot" design. No transfer-printed, hand-painted or otherwise decorated sherds were found in the site.

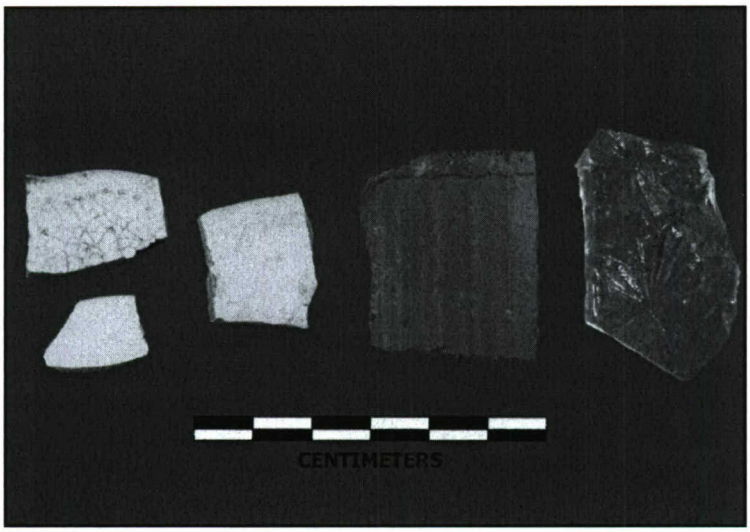

Figure 43. Decorated and undecorated rim sherds (left), Herty cup rim sherd (center), and decorated pressed-glass sherd (right) from 31HK864**.

Eight ceramic sherds are fragments of utilitarian type, stoneware storage vessels, such as jugs, jars or crocks. All recovered stoneware sherds have a gray salt glazed exterior finish with Albany slipped interiors. The assemblage's porcelain sherds are all plain finished and appear to be from thin-walled tea or coffee cups. Nine sherds from the site are from two or more "turpentine cups" (Figure 43), produced by the Herty Turpentine Cup Company after 1903 (Butler 1998). Such cups were used by naval stores producers to collect longleaf pine gum (resin), which was collected in barrels and transported to Fayetteville area distilleries where the gum was distilled to produce turpentine and other related products (Butler 1998; Parker 1990). Generally, the characteristics of the ceramic sherds recovered from the HH101C site are consistent with traits expected for tablewares and utilitarian wares (e.g., Albany slipped stoneware, plain whiteware and ironstone, etc.) produced in the United States between 1860 and 1930 (Ketchum 1983; Raycraft and Raycraft 1987; Snyder 1995).

Glass artifacts are primarily bottle and container sherds (e.g., solarized, clear, aqua and dark amethyst). Fragments of proprietary medicine or bitters bottles dominate the assemblage. Although glass table or decorative wares are poorly represented in the glass assemblage, two pressed-glass sherds were recovered. One fragment is solarized glass from a vase or decorative container and the other is clear glass with a "sunburst" pattern (Figure 43). Generally, the attributes of the glass fragments recovered from the HH101C site are consistent with those expected for bottles and glassware (e.g., patent medicine bottle fragments, solarized glass, etc.) produced in the United States between 1870 and 1918.[11] Three milkglass

[11] Solarized glass results when glass decolorized with manganese is exposed to ultra-violet (UV) sunrays. Manganese was not generally used to decolorize glass until 1880 (Newman 1970; NCOSA 1996; Polak 1994). Before World War I, European and American glassmakers typically imported manganese from Germany. With the advent of war in Europe and a subsequent trade embargo, American glassmakers switched from manganese to

sherds from cold cream or other similar ointment jars were also found in the assemblage. Although a small number of glass fragments from mid-to-late twentieth century soft drink and liquor bottles were collected, these materials likely relate to post-1940 military activities on the site and are intrusive in the historic house site artifact assemblage.

Table 39. 31HK864 historic ceramic sherds sorted by general ware type and predominant decorative treatment.

	Plain	Edge-molded Decoration	Base-molded Decoration	Totals
Whiteware	19 (48.7%)	6 (15.4%)	2 (5.1%)	27 (69.2%)
Stoneware	8 (20.5%)	-	-	8 (20.5%)
*Porcelain**	4 (10.3%)	-	-	4 (10.3%)
Totals	31 (79.5%)	6 (15.4%)	2 (5.1%)	39 (100%)

While ceramic vessel and glass container fragments dominate the artifact assemblage, a few agricultural and architectural items were recovered. No personal artifacts (e.g., buttons, buckles, coins, toys, etc.) were found on the site. Similar artifact patterns (i.e., low frequencies of personal, household and farm items) have been noted on other late nineteenth and early twentieth century, rural homestead sites in the South (Lebo 1987). A few unidentified iron parts (e.g., washers, etc.) were found along with a whetstone fragment and an electric fence insulator. Although fragmented, the insulator design is consistent with several styles produced in the late nineteenth and early twentieth centuries (Tod 1985). Although the artifact assemblage is generally diverse (Table 40), few architectural artifacts other than window glass and brick fragments were recovered.

A single cut nail, one wire nail, 26 window glass sherds and numerous machine-made brick fragments complete the architectural sub-assemblage. No discernable concentrations of brick or other architectural fragments were observed on the site. Although the original house location cannot be positively identified, it appears that the house structure was most likely situated approximately 50-75 meters west of Raeford and Vass Road. The location of the brick rubble scatter and surface concentration of artifacts is consistent with a recorded house location on the 1918 soil map of Hoke County, North Carolina (USDA 1918). Based on the architectural artifacts recovered, few definitive conclusions can be made about the original house construction. Too few nails were found to provide information beyond the fact that both cut and wire nails were apparently used. There is ample archaeological evidence on Fort Bragg for historic period, wooden framed structures that were built on sandstone or brick piers with either brick or sandstone chimneys (e.g., Scott and Hunt 1998). At the HH101C site, no *in situ* pier or chimney remnants were observed. A sample of brick fragments were collected from the surface rubble concentration, but no sandstone or plaster fragments were found in the positive STPs or on the surface of the site.

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selenium to decolorize glass of its' natural impurities. As a result, clear glass containers manufactured with manganese were not generally produced in America after 1915 (Newman 1970; Polak 1994). Patent medicines (i.e. "snake oils" and formulas of such ilk) became increasingly popular after 1860, but the Pure Food and Drug Act of 1907 led to more stringent government regulations and the eventual demise of the patent drug business when manufacturers were forced to list the ingredients of their remedies. "Classic" patent medicine and bitters bottles with embossed panels were generally produced between 1870 and 1920 (Polak 1994; Rosenberg and Kvietok 1981).

Analysis of the brick sample indicates that machine-made, stiff-mud (end-cut) bricks were used in the construction. No hand-made bricks were recovered. Although stiff-mud bricks were produced in urban areas of the Northeast before the Civil War, wide-scale production of the brick type did not become commonplace in the South until the last quarter of the nineteenth century (Greene 1992; Gurcke 1987). In a recent comparative study of bricks from brickyards and standing structures in Knoxville, Tennessee, it was concluded that dry-press common bricks were produced in that region between 1882 and 1890, while stiff-mud (end-cut) bricks were produced between 1888 and 1910. Stiff-mud (side-cut) bricks were found to dominate post-1900 sites, while hand-made or soft-mud (repressed) bricks dominated pre-1880 assemblages (Greene 1992). It is suggested that the bricks utilized in the construction of the HH101C** site were not likely manufactured before 1880. Given the lack of navigable waterways and railroad lines, by which to easily ship large quantities of brick, in the immediate vicinity of the HH101C** site, manufactured bricks used in the construction must have been shipped to the site by wagon, via the Raeford-Vass and Plank Roads. The bricks possibly originated from either the E. A. Poe Brick Company or the McIntyre Brickyard in Fayetteville. The Poe Brick Company was established in 1880 and served a 50 mile radius in the late nineteenth century (Johnson 1992:90).

Window glass thickness was found to be variable and ranged from 1.8 mm-to-3.3 mm. Based on data from the South Carolina Piedmont region, Orser et al. (1987:528-548) provided date ranges for window glass from structures constructed between 1857 and 1945. Orser et al. (1987) found that Pacific Northwest dates derived by Roenke (1978) were not appropriate for sites in the Southeast and further determined adjusted dates which correlated closely with ceramic dates and documented construction dates of structural sites at Millwood Plantation. While our glass sample from the HH101C** site is too small for statistically valid regression analysis, the thickness/date correlation, based on Orser et al. (1987:543), generally falls within the expected range. Eleven of the 26 sherds are 1.8—2.2 mm thick and are associated with an adjusted date range from 1886-to-1907. Twelve of the 26 sherds are 2.5—2.8 mm thick and are associated with an adjusted date range from 1920-to-1940. These dates fall within the date range expected (based on brick, nail, ceramic and glass artifact date ranges from the site) for either initial construction or later window replacement dates associated with a circa 1880-1918 occupation. Three window glass sherds were found to date to the 1936—1940 period (2.9—3.3 mm) and may be from WWII era military vehicle windshields or WWII period military structures erected near the site (see US Army Corps of Engineers 1948, 1958). Although no military buildings now exist in the area, the locale was part of an airborne drop zone and a small arms range. While the architectural artifacts were few in number, the content is similar to that recovered from the Tower House site (31HK695) described in this report.

Table 40. 31HK864 historic artifacts sorted by material type and general functional groups.

	Kitchen or Consumption	**Architectural**	**Personal**	**Activities (Agricultural)**	**Activities (Naval-Stores)**	**Activities (Misc.)**	**Totals**
Ceramic	39 (24.1%)	24 (14.8%)	-	1 (.6%)	9 (5.6%)	-	73 (45.1%)
Glass	56 (34.6%)	26 (16%)	3 (1.9%)	-	-	-	85 (52.5%)
Iron	-	2 (1.2%)	-	1 (.6%)	-	-	3 (1.8%)
Stone	-	-	-	-	-	1 (.6%)	1 (.6%)
Totals	95 (58.7%)	52 (32%)	3 (1.9%)	2 (1.2%)	9 (5.6%)	1 (.6%)	162 (100%)

The limited architectural evidence at hand indicates that the house was a plank-on-frame structure, situated on brick piers with a brick hearth and chimney. While sandstone may have been used in the construction of piers or a chimney, no significant sandstone fragments were observed on the site. As no plaster fragments were recovered, the interior of the house was apparently not plastered. The lack of plaster finished interior walls was common in tenant and smallholder farmhouses of the rural South in the late nineteenth and early twentieth centuries (Heath 1995; Orser et al. 1987). Although the nail assemblage is particularly small, one steel wire nail was recovered. Such architectural grade steel nails, made from Bessemer steel wire, were introduced in the United States in the late 1870s, but did not see wide-spread manufacture or general building use until the period between 1885 and 1890 (Adams 1998; Wells 1998). Based on the limited brick, window glass and nail data, it is likely that the HH101C site structure was not constructed until about 1885. This suggested construction date range correlates well with general date ranges of the recovered ceramic (ca. 1860—1930) and bottle glass (ca. 1870—1918) assemblages from the historic component of the site.

The site's prehistoric component is well represented by a diverse assemblage of stone tools and debitage. While no specifically diagnostic tools were recovered from the site, one recovered metavolcanic end scraper (Figure 44) is similar to Archaic period end scrapers reported by Coe 1964. The specimen is roughly triangular in form and was made from a prismatic flake that was trimmed on two sides. The form approximates Coe's (1964:73-76) Type I end scraper that was found to be most commonly associated with Palmer and Kirk phase (Early-to-Middle Archaic period) deposits. Other tools from the site include two retouched flake scraper fragments (Figure 45). One snapped scraper of a milky quartz material exhibits unifacial retouching. The other flake tool is of a semi-translucent quartz material and exhibits bifacial retouching. A diminutive quartzite polisher/abrader was recovered from the surface. This expedient pebble tool has a broad groove on one end and all surfaces exhibit use-alteration. Such multi-functional tools were used to shape or smooth wood, bone or stone objects (Adams 2002:84—86), and for food processing (Chapman 1975:164—165). In addition to the surface collected pebble grinder and scrapers, a single metavolcanic projectile point or drill/awl tip was found in the disturbed soils of STP-1 on Transect-1.

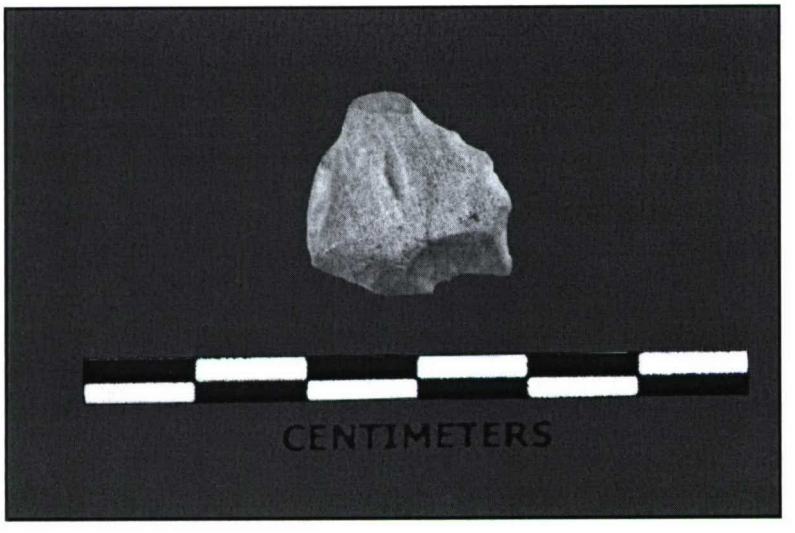

Figure 44. Formal End scraper from 31HK864.

Figure 45. Retouched flake scrapers from 31HK864.

The site's small debitage assemblage is diverse with a range of material and functional types represented. Nineteen metavolcanic flakes and 32 pieces of quartz debitage were recovered. The metavolcanic flakes, save one early reduction flake of porphyritic material, are all of an aphyric material and are heavily patinated. The metavolcanic debitage assemblage contains both early and late reduction flakes as well as numerous flake fragments. While all of the quartz materials are of a semi-translucent variety of quartz, many of the flakes are somewhat unusual for the area in that they were produced from a relatively good quality variety with a near crystal structure. The quartz debitage assemblage contains primary, early and late reduction flakes as well as numerous flake fragments and core shatter. The metric and technological characteristics of the site's lithic assemblage are summarized in Tables 41 and 42. Since the majority of the identifiable lithic materials are either late-stage tools or flakes, reduction activities primarily occurred on lithic materials partially reduced or otherwise prepared off-site. The few quartz primary stage reduction flakes, however, suggest limited tool manufacturing with intact cobbles may have also occurred.

Table 41. 31HK864 lithic tools and debitage classes sorted by raw material type.

	Projectile Point	**End Scraper**	**Retouched Flake Tool**	**Primary Reduction Flake**	**Early Reduction Flake**	**Late Reduction Flake**	**Flake Fragment**	**Core Shatter**	**Totals**
Metavolcanic	1 (1.9%)	1 (1.9%)	-	1 (1.9%)	3 (5.7%)	10 (18.9%)	4 (7.5%)	-	20 (37.8%)
Quartz	-	-	2 (3.8%)	1 (1.9%)	4 (7.5%)	8 (15.1%)	15 (28.2%)	3 (5.7%)	33 (62.2%)
Totals	1 (1.9%)	1 (1.9%)	2 (3.8%)	2 (3.8%)	7 (13.2%)	18 (34.0%)	19 (35.7%)	3 (5.7%)	53 (100%)

Table 42. 31HK864 lithic debitage classes sorted by size categories.*

	≤1 cm	>1 ≤2 cm	>2 ≤3 cm	>3 ≤4 cm	Totals
Metavolcanic	3 (6.1%)	5 (10.2%)	7 (14.3%)	3 (6.1%)	18 (36.7%)
Quartz	9 (18.4%)	11 (22.5%)	8 (16.3%)	3 (6.1%)	31 (63.3%)
Totals	12 (24.5%)	16 (32.7%)	15 (30.6%)	6 (12.2%)	49 (100%)

*Does not include projectile point, end scraper or firecracked rock.

Only two of the 16 STPs excavated on the HH101C site were relatively undisturbed. Soils in the undisturbed areas of the site are generally representative of the Candor Series. The site's intact soil profile consists of dark grayish brown, sandy humus, overlying an E-horizon of yellowish brown sand. The Bt-horizon is yellowish brown loamy or clayey sand. Where apparently undisturbed, the depth of the A-horizon is 15—20 cmbs, while the Bt-horizon is generally evident between 50 and 75 cmbs. Based on the low frequency of subsurface artifacts, potentially associated with features or other anthropogenic deposits, and the distinct lack of undisturbed, *in situ* architectural remains, the HH101C site (31HK864) will not likely produce additional data of archaeological or historic significance. While subsequent revisits may produce some additional artifacts from a surface context, the site is considered destroyed and not eligible for inclusion to the NRHP. As such, no further work is recommended.

OCCURRENCES

31CD769

The prehistoric Mud Top Occurrence, recorded and investigated during the Operation Purple Dragon Survey, is located on the easterly slope of a low upland hilltop, approximately 200 m south of McPherson Creek's tributary headwaters (Figures 4 and 65). A single, medial biface fragment of porphyritic rhyolite was recovered from the surface of a northeast-southwest trending firebreak. Although the fragment is most likely a projectile point portion, no temporally diagnostic attributes are evident. The worked surfaces of the fragment are heavily patinated. The biface portion was not apparently associated with other surface visible artifacts of a prehistoric nature.

The general area of the occurrence shows extensive evidence of significant subsurface disturbance from previous military training activities and is badly eroded with 80%+ surface exposure of clayey Bt1/Bt2-horizon soils. It was further determined that the occurrence was actually located in a previously shovel-tested survey area where no sites or occurrences were recorded (Trinkley et al. 1997). Based on the degree of surficial erosion, evidence of intensive military excavation disturbances, and previous negative survey data, no further subsurface testing was undertaken. The Mud Top occurrence (31HK769) is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK631

The prehistoric and historic period Raintree occurrence, recorded and investigated during the Operation Purple Dragon survey, is located on the easterly slope of an upland flat, approximately 400 m west of Nicholson Creek (Figures 4 and 65). Prehistoric lithic debitage, one historic ceramic sherd, and brick fragments (brick not collected) were observed on the surface of a large clearing. While a single retouched quartz flake and one piece of cobble shatter, both of semi-translucent-to-white quartz, are indicative of very limited prehistoric activity in the area, no temporally diagnostic artifacts were recovered for the prehistoric component.

The single plain ironstone sherd and a light scatter of small brick fragments indicate some limited degree of historic activity in the same general locale of the quartz debitage. The ironstone sherd is from a highly vitrified piece of commercial grade ware that is commonly referred to as "hotel ware" or "American hotel china" (Newcomb 1947). Such materials generally post-date the 1870s (Price 1982). The brick fragments and ironstone sherd are likely associated with a Depression era, Civilian Conservation Corps (CCC) camp that was originally situated some 200-to-300-m to the west of 31HK631 on the north and south sides of Plank Road (see USACE 1948, 1958).

The general area of the occurrence shows extensive evidence of significant subsurface disturbance and soil column homogenization from previous military training activities. The soil column is badly eroded with 90%+ surface exposure of sandy E'1/E'2 horizon and clayey B't-horizon soils. Based on the degree of surficial erosion and evidence of military excavation or construction disturbances, no further subsurface testing was undertaken.[12] The Raintree occurrence (31HK631) is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

[12] In 1999, 31HK631/631** was shovel tested as part of a larger archaeological survey project in the vicinity of Mott Lake. No surface or subsurface materials were recovered at 31HK631/631**. STPs in the general vicinity of the previously recorded occurrences were sterile of cultural materials and revealed deflated soils (Idol 1999).

31HK636

The Late Paleo-Indian-to-Early Archaic period Todd occurrence, recorded and investigated during the operation Purple Dragon survey, is located on the east-to-southeast trending slope of an upland flat, approximately 500 m west of an unnamed tributary of Little Rockfish Creek (Figures 4 and 65). Two fragments from a single metavolcanic biface were recovered from the surface of a refilled fighting position (i.e., "foxhole"). The associated pieces, when mended, were identified as the basal portion of a Hardaway-Dalton projectile point (Figure 46). The worked surfaces of the fragments are heavily weathered, but the break area between the two pieces is rather fresh and indicative of a recent break. Macroregional data suggest that Hardaway-Dalton projectile points developed in the North Carolina Piedmont out of the Clovis tradition and were produced during the transitional period between the Late Paleo-Indian and Early Archaic periods (Coe 1964; Oliver 1985).[13]

Upon further surface investigation of the occurrence, no additional cultural materials were recovered. Four cardinal direction STPs were excavated on a 15-m interval around the occurrence location, but all four units proved to be negative. The general area of the occurrence shows extensive evidence of significant subsurface disturbance and soil column homogenization from previous military activities related to training events near Todd Drop Zone, which is situated in a clear cut approximately 50 m to the east. Much of the occurrence area, while covered with mature secondary pine growth, is badly eroded with areas of 90%+ surface exposure of sandy-to-clayey sand C2/C3-horizon soils. Based on the apparent degree of surficial erosion and subsurface evidence of military excavation or DZ construction disturbances, no further subsurface testing was undertaken. During an unrelated CRM survey (FBCRP Project #1998-1.47) on the east side of Todd DZ, a badly disturbed, Early Archaic site, the No Quarter site (31HK645), was located approximately 110 m east-northeast of 31HK636. Unfortunately, the No Quarter site was found destroyed, either by previous military training activities or by earlier DZ construction operations. Although the projectile point fragment recovered at 31HK636 is possibly related to activities that occurred at 31HK645, the Todd occurrence (31HK636) is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK646

The prehistoric Snake Sign Occurrence was recorded and investigated during the LRAM survey of gun position TT-203. The occurrence is located on the eastern side of an upland flat, approximately 340 m west of an unnamed McDuffie Creek tributary (Figures 4—5 and 65). A low-density scatter of lithic material and concrete pieces (discarded) were recovered from the north shoulder area of Firebreak #22. The artifact assemblage includes one heavily patinated, late-stage biface fragment of aphyric rhyolite and a small quantity of quartz debitage. The core shatter fragment is of a semi-translucent-to-white quartz material and the single recovered late reduction flake is of a finer grade milky quartz material. A small flake fragment, of a grainy "rose" quartz material, was also recovered. Although the core shatter and flake do not show evidence of thermal alteration, the pinkish color of the single flake fragment may indicate thermal alteration (Benson 1999). While the recovered lithics are indicative of some limited prehistoric tool manufacturing activity with variable materials, no temporally diagnostic artifacts were recovered.

Four opportunistic STPs were positioned in relatively undisturbed portions of the occurrence area, but all units were negative. Soils near the surface collected scatter appear to be heavily disturbed and are representative of the Candor Series. All four STPs exhibited a near completely deflated soil column with the Bt-horizon apparent at 2—10 cmbs. The gun position was burned and roller chopped in

[13] The generally accepted date range for the Hardaway-Dalton type in the Southeast is approximately 8,500—7,500 B.C. (Anderson et al. 1996; Larsen and Schuldenrein 1990; Michie 1996. Oliver (1985), following Coe (1964), suggested that the Hardaway-Dalton represents the transitional type between the earlier, Paleo-Indian period Hardaway Blade and the later, Early Archaic period Hardaway Side-Notched point types.

1999 and the site was revisited in 2000 and 2003. Two metavolcanic flake fragments and a large cobble spall (primary reduction) of low-quality, brownish semi-translucent quartz were recovered from the deflated and disturbed occurrence area. Additionally, substantial quantities of quartz pebble and cobble shatter fragments were collected during the revisit, but a military debris pile of concrete and lithic rubble was found near the original occurrence location. The revisit "artifacts," except for the three definitive reduction flakes, were recovered from randomly distributed scatters of quartz materials that radiated out from the military, construction debris dump site. Based on the low frequency of surface artifacts, the negative subsurface data and the evidence of heavy disturbance, the Snake Sign occurrence (31HK646) is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK665

The prehistoric Ground Zero #1 Occurrence was recorded and investigated during the LRAM survey of gun position EE-205. The occurrence is located on the east-northeast slope of an upland flat, approximately 220 m west of an unnamed tributary of Gum Branch (Figures 4, 16 and 65). A single, metavolcanic flake fragment was recovered from the surface. The fragment is of an aphyric rhyolite material and the worked surfaces are heavily patinated. While this single fragment is indicative of very limited prehistoric activity in the area, no temporally diagnostic artifacts were recovered.

The general area of the occurrence shows extensive evidence of significant subsurface disturbance from previous military training activities and is badly eroded with 95%+ surface exposure of sandy-to-clayey sand C2/C3-horizon soils. Based on the degree of surficial erosion and evidence of extensive military excavation, no further subsurface testing was undertaken. The Ground Zero #1 occurrence (31HK665) is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK666

The prehistoric Ground Zero #2 occurrence was recorded and investigated during the LRAM survey of gun position EE-205. The occurrence is located on the east-northeast slope of an upland flat, approximately 400 m west of an unnamed tributary of Gum Branch (Figures 4, 16 and 65). Two metavolcanic flake fragments and one metavolcanic early reduction flake were recovered from the surface. The debitage is of an aphyric rhyolite material. All pieces exhibit heavily patinated surfaces, but are relatively homogenous in terms of color and structure. While the recovered lithics are likely indicative of a single reduction episode, no temporally diagnostic artifacts were recovered. Materials recovered from this spatially discrete (10 m^2) occurrence may be related to the Ground Zero #1 (31HK665) occurrence which was observed approximately 175 m to the east. Unfortunately, no chronologically diagnostic materials were recovered from the two potentially related sites.

The general area of the occurrence shows extensive evidence of significant subsurface disturbance from previous military training activities and is badly eroded with 95%+ surface exposure of sandy-to-clayey sand C2/C3-horizon soils. Based on the degree of surficial erosion and evidence of extensive military excavation, no further subsurface testing was undertaken. The Ground Zero #2 occurrence (31HK666) is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK667

The prehistoric Cherry Patch occurrence was recorded and investigated during the LRAM survey of gun position EE-204. The occurrence is located on the north-northeast slope of an upland flat,

approximately 400 m east of an unnamed tributary of Gum Branch (Figures 4 and 65). One quartz flake fragment and one piece of quartz cobble shatter with cortex were recovered from the surface. The flake is of a relatively fine milky quartz material while the cobble shatter is of a brownish semi-translucent quartz material. While the recovered lithic materials are indicative of some limited prehistoric tool manufacturing activity in the area, no temporally diagnostic artifacts were recovered. Materials recovered from this spatially discrete (25 m^2) occurrence may be chronologically related to the Ground Zero #2 Occurrence, which was observed approximately 200 m to the northeast.

The general area of the occurrence shows extensive evidence of significant subsurface disturbance from previous military training activities and is badly eroded with 75%+ surface exposure of sandy-to-clayey sand C2/C3-horizon soils. Numerous sand trails crisscross the area of the occurrence. Based on the degree of surficial erosion and evidence of extensive military excavation, no subsurface testing was undertaken. The Cherry Patch occurrence (31HK667) is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK669

The historic Thirsty Hill Occurrence was recorded and investigated during the LRAM survey of gun position EE-204. The occurrence is located on the north-northeast slope of an upland flat, approximately 370 m east of an unnamed tributary of Gum Branch (Figures 4, 16 and 65). One brick fragment and one transfer-printed whiteware sherd were recovered from the surface. The brick fragment is badly weathered and it cannot be determined whether the original brick was hand-made or machine-made. The whiteware sherd is nearly vitrified and most likely dates to the post-1870 period. Materials recovered from this occurrence are probably related to the Scuppernong Knoll house site (31HK681**), circa 1870—1918, which was recorded approximately 300 meters east of 31HK669 during a later, unrelated survey (FBCRP Project #1998-1.59) just outside the boundaries of gun position EE-204.

The general area of the 31HK669 occurrence shows extensive evidence of significant subsurface disturbance from previous military training activities and is badly eroded with 50%+ surface exposure of sandy-to-clayey sand C2/C3-horizon soils. Numerous sand trails crisscross the area of the occurrence. Based on the degree of surficial erosion and evidence of extensive military excavation, no subsurface testing was undertaken. The Thirsty Hill occurrence (31HK669) is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK684

The prehistoric Wildflower Occurrence was recorded and investigated during the LRAM survey of gun position AA-210. The occurrence is located on the east-northeast slope of an upland flat at the headwaters of Tuckahoe Creek (Figures 4 and 65). The occurrence is approximately 220-m south of the stream head. A single large, late reduction flake of aphyric rhyolite, with minor ferric inclusions, was recovered from the surface. While the recovered lithic material is indicative of very limited prehistoric tool manufacturing activity in the area, no temporally diagnostic artifacts were recovered.

Due to extremely limited surface visibility in the immediate vicinity of the occurrence, two STPs were excavated to further evaluate the subsurface stratigraphy and potential for intact archaeological deposits. Both units were negative and the profiles indicated heavy soil disturbance down to the Bt-horizon. This gun position had been previously surface surveyed, under better surface visibility conditions (75%+), in May of 1998 (FBCRMP Project #1998-1.25) and no cultural materials were recovered at that time. The general area of the Wildflower occurrence shows extensive evidence of significant subsurface disturbance from previous military training activities and is badly eroded with 50%+ surface exposure of the loamy Bt-horizon soils. Based on previously negative survey data, the

observed degree of surficial erosion and evidence of extensive military excavation, no further subsurface testing was undertaken. The Wildflower occurrence (31HK669) is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK686

The Late Woodland period Overlook Occurrence, recorded and investigated during the LRAM survey of OP-11 (Artillery Observation Post), is located inside the 300 m "buffer zone" around Coleman Impact Area. The occurrence is located on the easterly trending slope of a substantial upland hilltop, locally referred to as Gaddy's Mountain (Figures 4, 18 and 65). The occurrence is near the headwaters of Deep Creek, approximately 280 m west of the now dry stream head. A single metavolcanic projectile point was recovered (Figure 47). The somewhat poorly knapped specimen is of aphyric rhyolite and is only moderately weathered. The point form falls within the expected range of variation for the Pee Dee Triangular type as originally classified and illustrated in Coe (1964:48), and later in Coe (1995:203). While the generally accepted date range for the Pee Dee phase is approximately A.D. 900—1400, Coe (1995:194, 203) suggested a date range of A.D. 1200—1300 for Pee Dee Triangular points. While no known examples of Pee Dee pottery have been recovered on Fort Bragg, the presence of this specimen, along with the sample of Pee Dee points from other Fort Bragg sites (Culpepper et al. 2000; Irwin et al. 1998) suggests some limited Pee Dee phase activities, perhaps in the form of temporary hunting camps, in the Sandhills during the Late Woodland period. Alternately, similar bifaces recovered in the Georgia Sandhills have been interpreted as "expanded base drills" in Late Archaic—Early Woodland contexts (Ledbetter 1995).

A heavily utilized, unimproved, road crosses the occurrence area. The general area of the occurrence, however, shows evidence of significant subsurface disturbance from previous military training activities and the soil column is badly deflated or eroded with 90%+ surface exposure of the sandy-clay Bt-horizon soils. Based on the degree of surficial erosion and evidence of extensive military excavation, no subsurface testing was undertaken. Furthermore, the occurrence is located in an artillery impact area and the potential presence of unexploded ordnance precludes safe subsurface testing of the site locale. The Overlook occurrence (31HK686) is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK690

The prehistoric and historic period Hemingray Occurrence was recorded and investigated during the LRAM survey of gun position HH-102. The occurrence is located on the westerly trending slope of a low upland hilltop at the head of an unnamed tributary of Juniper Creek (Figures 4, 20 and 65). The central area of the site is situated near the top of a long, gradual slope, approximately 350 m north of the stream head. Prehistoric lithic debitage and historic glass artifacts were recovered from the surface of a large clearing. A single late reduction flake of porphyritic rhyolite is indicative of very limited prehistoric activity in the area and no temporally diagnostic artifacts were recovered for the prehistoric component. A glass electrical insulator and two glass bottle fragments, both of twentieth century origin, indicate a limited degree of late historic period activity in the same general locale as the metavolcanic debitage.

The insulator is made of clear glass and is embossed with "MADE IN U.S.A." and "HEMINGRAY-9" in prominent letters/numbers around the exterior side of the hollow base. The number "70" appears below the country of origin markings and the numbers "0_4_" appear below the manufacturer's name in smaller numbers. This type insulator was first produced in the 1890s and was used in association with rural telephone line systems through the 1960s (see insulator information at *http://www.insulators.com/general/profiles/106hemi.htm*). Since the site is only 40—50 m west of Raeford-Vass Road, the insulator most likely originated from a no longer extant telephone line that once

paralleled the west shoulder of the road. Two aqua-colored bottle glass sherds were the only other historic materials recovered from the occurrence area. Both sherds were from the basal portion, based on the distinctive molded features, of a post-1917, hobble-skirted "Coca-Cola" bottle. The base is intact and is embossed with the words "Fayetteville - NC." All artifacts likely to date to the post-1945 period. Given the recent age of these materials, it is clear that the historic occurrence at this locale is the result of World War II or post-World War II military activity and not apparently associated with any known pre-1918 farmsteads or related sites that existed before the US Army occupation of Fort Bragg lands.

The general area of the two spatially associated occurrences shows extensive evidence of significant subsurface disturbance and soil column homogenization from previous military training activities and is badly eroded with 90%+ surface exposure of the somewhat clayey C2-horizon soils. Based on the degree of surficial erosion and evidence of military excavation and/or construction disturbances, no subsurface testing was undertaken. The Hemingray occurrence (31HK690) is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK694

The prehistoric Tower West occurrence was recorded and investigated during the LRAM survey of gun position Y401. The occurrence is located on an upland flat near the head of an unnamed tributary of Tuckahoe Creek (Figures 4, 21 and 65). The occurrence is approximately 260 m north of the stream head. Three semi-translucent-to-white quartz flakes, one late reduction flake, one early reduction flake and a single flake fragment, were recovered from the surface. While the minor scatter of debitage is indicative of very limited prehistoric tool manufacturing activity in the area, no temporally diagnostic artifacts were recovered. Although a large number of open and eroded fighting positions were located and surface collected, the overall surface visibility at this gun position was extremely low at the time of survey. Much of the clear-cut, southern portion of the position was covered in tall thick grasses and scattered scrub oaks.

A central STP with four 15-m interval radials, positioned in cardinal directions, was excavated in the occurrence area, but all units were negative. Soils in the occurrence area appear to be generally undisturbed and are representative of the Candor Series. Four of the three STPs exhibited natural soil stratigraphy, while only one unit (STP-1) exhibited a completely deflated soil column with the Bt-horizon apparent at 2 cmbs. The specific locale of the site shows limited surficial evidence of subsurface disturbance from previous military training activities and road grading. While there is little evidence of extensive subsurface disturbance, there are apparently no subsurface artifact deposits. Based on the low frequency of surface artifacts and negative subsurface data, the Tower West occurrence (31HK694) is considered incidental and is not eligible for inclusion to the NRHP. As such, no further work is recommended.

31HK700

The prehistoric Lower Sassafras Occurrence was recorded and investigated during the LRAM survey of gun position FF-101. The site is located on the slope of a ridgeline hilltop, approximately 280 m north of Cabin Branch Creek, near it's confluence with Rockfish Creek southeast of the occurrence (Figures 4, 32, 33 and 65). Three pieces of lithic debitage and one piece of firecracked quartzite were recovered from the surface. The two late reduction flakes are, respectively, of high quality crystal quartz and aphyric metavolcanic material while the single flake fragment is of semi-translucent-to-white quartz. While the recovered lithics are indicative of very limited prehistoric tool manufacturing activity in the area, no temporally diagnostic artifacts were recovered. Materials recovered from this spatially discrete

(30 m^2) occurrence, may be related to the Upper Sassafras (31HK699) or Middle Archaic period Skanky Skink (31HK698) sites, respectively located 80 m and 200 m to the northeast on the same landform.

The general area of the occurrence shows extensive evidence of significant subsurface disturbance from previous military training activities. The specific location of the occurrence, a washed out sand road is badly eroded with 95%+ surface exposure of the loamy Bt-horizon soils. Numerous sand trails crisscross the area of the occurrence. Based on the degree of surficial erosion and evidence of extensive military excavation, no subsurface testing was undertaken. The Lower Sassafras occurrence (31HK700) is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK847

The prehistoric OP-11 Isolate #1 Occurrence, recorded and investigated during the LRAM survey of OP-11 (Artillery Observation Post), is located inside the 300 m "buffer zone" around Coleman Impact Area. The occurrence is located on the westerly slope of a substantial upland hilltop, locally known as Gaddy's Mountain (Figures 4, 18 and 65). The occurrence is near the headwaters of Deep Creek, approximately 460 m south-southwest of the now dry stream head. One quartz biface fragment and one piece of quartz core shatter were recovered. The biface fragment appears to be from the mid-section of a middle stage bifacial tool. The biface fragment is of a higher quality milky quartz material, while the shatter is of a lower quality semi-translucent-to-white material. While the recovered lithics are indicative of very limited prehistoric tool manufacturing activity in the area, no temporally diagnostic artifacts were recovered. Materials recovered from this spatially discrete (25 m^2) occurrence may be related to the 31HK250 site, located approximately 75 m northeast of 31HK847. Loftfield (1979:G-14) originally recorded site 31HK250, but we were unable to relocate the site, at the coordinates indicated in Loftfield (1979), during the LRAM survey of OP-11. Site 31HK250 (Loftfield site #CDA-2) is a Late Woodland period occupation site where two Clarksville type projectile points and 28 pieces of quartz debitage were recovered. Loftfield (1979) considered 31HK250 to be destroyed and recommended no additional work.

A heavily utilized, unimproved, road crosses the site area. The general area of the occurrence, however, shows evidence of significant subsurface disturbance from previous military training activities and the soil column is badly deflated or eroded with 90%+ surface exposure of the sandy-clay Bt-horizon soils. Based on the degree of surficial erosion and evidence of extensive military excavation, no subsurface testing was undertaken. Furthermore, 31HK847 is located in an artillery impact area where the potential presence of unexploded ordnance precludes safe subsurface testing of the locale. The OP-11 Isolate #1 occurrence (31HK847) is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK875

The Terminal Archaic-Early Woodland period Frosty Flake Occurrence was recorded and investigated during the LRAM survey of gun position CC-103. The occurrence is located on the south slope of a major ridgeline near the headwaters of an unnamed tributary of Rockfish Creek, approximately 150 m north of the stream head (Figures 4 and 65). A stemmed metavolcanic projectile point was recovered from the surface (Figure 48). Although the extreme distal portion of the stem is missing, the point is nearly intact. The specimen is of porphyritic rhyolite and is moderately patinated. The point form falls within the expected range of variation for the Small Savannah River (Coe 1964:110)—Gypsy (South 1959)—Swannanoa (Keel 1976)—type range of small stemmed projectile points. While the discrete traits used to define and segregate these three point types, which all apparently evolved out of the Savannah River tradition (Oliver 1985), blur and overlap, it is generally accepted that such small

Figure 46. Eared projectile point from 31HK636.

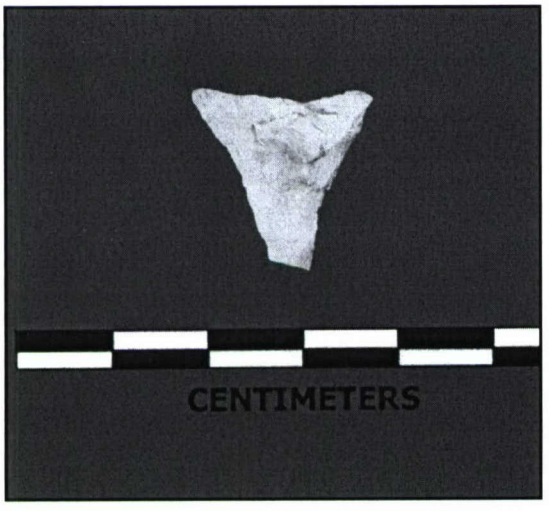

Figure 47. Triangular projectile point from 31HK686.

Figure 48. Stemmed projectile point from 31HK875.

stemmed points originated in the Terminal Archaic period, but were utilized throughout the Early Woodland period (Oliver 1985; Phelps 1983; Purrington 1983; Ward 1983) in North Carolina. Based on the type description defined by Keel (1976:196-197) our present specimen appears to fall more specifically within the expected range of variation for the Early Woodland period Swannanoa type.[14]

Due to limited surface visibility in the immediate vicinity of the surface find, four STPs were excavated in cardinal directions around the occurrence. All four units were negative and exhibited soil column disturbances up to 50 cmbs. The general area of the Frosty Flake Occurrence shows extensive evidence of significant subsurface disturbance from previous military training activities and is badly eroded with 90%+ surface exposure of the loamy Bt-horizon soils. Based on the observed degree of surficial erosion, subsurface disturbance, and evidence of extensive military excavation, no further subsurface testing was undertaken. The Frosty Flake occurrence (31HK875) is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

31HK887

The prehistoric Washout Trail occurrence was recorded and investigated during the LRAM survey of gun position GG-201. The occurrence is located on the northerly slope of an upland spur, near the head of an unnamed tributary of Juniper Creek (Figures 4 and 65). The central area of the site is situated approximately 100 m south of the stream head, downslope of a low upland hilltop. One quartz flake fragment and one piece of quartz core shatter were recovered from the surface. The debitage is of a white quartz material. No temporally diagnostic artifacts were recovered. Although a large number of open and eroded fighting positions were located and surface collected, the overall surface visibility at this gun position was extremely low at the time of survey. Much of the clear-cut, southern portion of the position was covered in tall thick grasses while the northerly portion was found vegetated with a dense thicket of scrub oaks and small pines. Accordingly, the location was shovel tested on a 30-m interval within the marked boundaries of the gun position. All 10 shovel tests were negative. A thorough surface inspection of all roads, trails, eroded areas and open fighting positions revealed no additional cultural materials.

The general area of the occurrence shows extensive evidence of significant subsurface disturbance from previous military training activities. The specific location of the occurrence, a washed out sand road is badly eroded with 95%+ surface exposure of the loamy Bt-horizon soils. Numerous sand trails crisscross the area of the occurrence. Based on the degree of surficial erosion and evidence of extensive military excavation, no further subsurface testing was undertaken. The Washout Trail occurrence (31HK887) is considered incidental and/or destroyed. As such, it is not eligible for inclusion to the NRHP and no further work is recommended.

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[14] Based on macroregional dates and stratigraphic data from the Warren Wilson site (31BN29) in western North Carolina, Keel (1976:241) originally suggested a 700—200 B.C. date range for the Swannanoa phase. His proposed date range was, however, based largely on radiocarbon dates from other areas of the Southeast. More recent dates (Eastman 1994), with calibrated intercept date ranges of 1125—822 B.C. (1-sigma: 1306—545 B.C.) for Swannanoa phase features at the Phipps bend site in Tennessee (40HW45), suggest a much earlier, Late Archaic period, genesis for the phase. While no known examples of Swannanoa pottery have been recovered on Fort Bragg, similar, Swannanoa-like points have been. Such specimens have been typically classified as either Small Savannah River or Gypsy Stemmed types (e.g., Benson and Braley 1998). On the northeastern Coastal Plain (Phelps 1983), such small stemmed points (i.e., "Gypsy") have been found in association with both Terminal Late Archaic period pottery types such as the Stallings Island series (2,500-1,000 B.C. [Anderson 1996]), and Early Woodland period pottery types, such as the Deep Creek series (1,100—300 B.C. [Phelps 1983]).

V: SUMMARY AND DISCUSSION

Small-scale archaeological surveys of multiple, non-contiguous Artillery Firing Position (AFP) and Operation Purple Dragon (OPD) command-post (CP) bunker locations resulted in the identification and investigation of the 20 archaeological sites and 16 occurrences described in this report (Tables 2 and 43). Most reported sites are heavily disturbed, primarily from past anthropogenic (e.g., military training excavation, road or firebreak construction) or anthropogenically induced (e.g., surficial erosion, soil strata mixing, soil column deflation) transformation processes associated with post-1918 military training activities. Although all sites and occurrences discussed in this report are recommended as ineligible for inclusion on the National Register of Historic Places (NRHP), and, hence, will receive no further work, we hope the detailed site/artifact descriptions, presented in Section IV and briefly summarized here in Section V, will provide useful data pertinent in future syntheses of Sandhills prehistory and history.

While the sites and occurrences discussed (Section IV) are recommended as not worthy of further study or listing on the NRHP, specific aspects of the recovered archaeological information are relevant for comparative purposes to past and future research projects in the Carolina Sandhills. The survey data set, however, is biased at several levels and many potential inferences one might glean from the reported results are problematic. The biases relate to sample size, survey area locations and the variable survey methods employed (see Section III and Appendix E). In past decades, designated AFPs were purposefully located by battery commanders or subordinate leaders on relatively flat-to-moderately sloped landforms of locally high elevation. Such locations are often found on interfluves adjacent to first-order tributary stream heads (Figure 65). These criteria, among others, such as access road and trail connections, direction of artillery Impact Areas, presence/absence of federally protected endangered species, etc., collectively factored into the commanders' decision-making processes.

Coincidentally, at least from the perspectives of tactical or training safety considerations, many prehistoric sites on Fort Bragg, especially prehistoric period sites, are found in areas that exhibit these same basic topographic conditions (e.g., Braley 1988, 1990; Culpepper et al. 2000; Irwin et al. 1998; Loftfield 1979). As such, the US Army's tendency for locating AFPs in these particular environmental niches coincides with the selective use of the natural landscape by prehistoric peoples from the Archaic through Woodland periods. Since the AFP/OPD survey areas are typically environmentally discrete locales, the full range of Sandhills microenvironments is not represented in the survey data (Figure 65). This important factor, combined with the small sample size (n=20 sites/n=16 occurrences) and the variable field methods employed in the survey of each firing position, inevitably biased the survey results. As such, the described data reflect, at best, the broadest human behavioral and adaptive trends of the past.

Generally, archaeological survey results from Fort Bragg typically inform an approximate understanding of past lifeways related to regional settlement patterns and land use activities in the Sandhills. Although the investigated archaeological sites and occurrences exist across the landscape because of culturally significant factors, biases in the survey data, however, are evident. We cannot readily consider commonly evaluated settlement pattern variables for each prehistoric time period (e.g., site density, mean site size, mean distance-to-stream, mean elevation, mean slope) or landscape use with our circumscribed data set. This said, however, the data recovered and recorded can be readily integrated into future large-scale studies, such as regional site predictive modeling. Here, we simply summarize the findings for management purposes and briefly consider limited interpretive issues not necessarily hampered by the present sampling problem. As such, the interpretations offered, particularly where based on the restricted data set described, are exploratory and generalized.

Cultural Components Investigated

The collective OPD and AFP survey results (Fort Bragg CRP surveys [572 acres]), indicate an approximate site density of one site or occurrences per 11.0 acres surveyed. This ratio is comparable to site densities reported for airborne Drop Zone surveys on Fort Bragg (e.g., Braley 2001; Trinkley et al. 1996) and certainly relates to the modern microenvironments of most AFPs. The majority of the survey tracts are environmentally compromised areas where soil columns are significantly disturbed or deflated, vegetation cover patchy, and visibility comparatively high, particularly in relation to adjacent wooded training lands where site or occurrence densities, determined solely on subsurface evidence, are typically lower (e.g., Benson 2000, 2002; Braley 1989a, 1989b, 1990; Clement et al. 1997; Culpepper et al. 2000; Gray and McNutt 2003; Idol 1999; Idol and Becker 2001; Irwin et al. 1998; Ruggiero 2003). While site or occurrence surface visibility is enhanced on Drop Zones and AFPs because of past soil disturbance, erosion or low vegetation density, many AFPs and their associated sites or occurrences are located on relatively flat or moderate slope, locally high ground near tributary stream heads and lower order tributary stream trunks (Figures 4 and 65). Since such locales were apparently advantageous to prehistoric settlement in the Sandhills, visibility conditions conducive to archaeological site or occurrence identification only partially account for the higher than average site density. Thus, as noted, the Army's propensity for locating AFPs in these specific areas coincides with Sandhills land use by prehistoric peoples, particularly during the Archaic period (Table 43; Figures 49—50).

Table 43. Summary site and occurrence data by period.

Site Number	Fort Bragg Site Name	Chronological Period	Site (S) Occ. (O)
31CD769	Mud Top	prehistoric	O
31HK631/631	Raintree	prehistoric and mid-20th c.	O
31HK636	Todd	Terminal Paleo-Indian/ Early Archaic	O
31HK642	Iron Butterfly	Middle-Late Woodland	S
31HK643	Grasshopper	Middle Woodland	S
31HK644	Wild Iris	prehistoric	S
31HK646	Snake Sign	prehistoric	O
31HK649	Mill Bend	Late Woodland	S
31HK665	Ground Zero # 1	prehistoric	O
31HK666	Ground Zero # 2	prehistoric	O
31HK667	Cherry Patch	prehistoric	O
31HK668	Quartz Rubble	prehistoric	S
31HK669	Thirsty Hill	late 19th-early 20th c.	O
31HK671	Hot Chicken	Middle Archaic	S
31HK684	Wildflower	prehistoric	O
31HK686	Overlook	Late Woodland	O
31HK687	Bella Ray	Early-Middle Archaic	S
31HK689	Screaming Crow	prehistoric	S
31HK690	Hemingray	prehistoric and mid-20th c.	O
31HK691	Trash Hill	prehistoric	S
31HK693	Upper Horse Crk.	Middle Archaic	S

Table 43 (continued). Summary site and occurrence data by period.

Site Number	Fort Bragg Site Name	Chronological Period	Site (S) Occ. (O)
31HK694	Tower West	prehistoric	O
31HK695	Tower House	late 19th-early 20th c.	S
31HK696	Tower East	Middle Archaic	S
31HK697	OP 11 Isolate #2	prehistoric	S
31HK698	Skanky Skink	Middle Archaic	S
31HK699	Upper Sassafras	prehistoric*	S
31HK700	Lower Sassafras	prehistoric	O
31HK847	OP 11 Isolate #1	prehistoric	O
31HK858	Bunker Flat	prehistoric	S
31HK860	Jack	prehistoric	S
31HK861	Bunker Hill	prehistoric	S
31HK863	HH101A	Middle Archaic and early 20th c.	S
31HK864	HH101C	prehistoric and early 20th c.	S
31HK875	Frosty Flake	Terminal Archaic/ Early Woodland	O
31HK887	Washout Tail	prehistoric	O

*A Savannah River stemmed projectile point was later recovered from the surface of this site (Joseph M. Herbert, personal communication 2003).

Minimally, 40 cultural components are represented in the artifact assemblages recovered from the 36 sites and occurrences investigated. In terms of chronology, the majority of the sites and occurrences only produced low frequencies of culturally modified lithic material, but no time-sensitive artifacts such as diagnostic projectile points or pottery (Table 43; Figures 49—50). Based on site size and artifact type/density observations, 55% (n=22) of the recorded prehistoric/historic components are best designated as small temporally unidentifiable lithic scatters, a site "type" frequency similar to that found in most previous surveys in the Carolina Sandhills (see Irwin et al. 1998:Figure 39).

In instances where broad chronological associations were inferred from recovered diagnostic artifacts primarily from surface contexts (n=16 components), Archaic period components (n=8[50%]) are more frequent than either Woodland (n=4[25%]) or later historic (n=4[25%]) period components (Figures 49—50). Moreover, one intuitively suspects that most of the non-diagnostic lithic scatters encountered, simply designated as "prehistoric," probably date to the greater Archaic period as well. Given lithic raw material use in the Sandhills over time, however, any number of the non-diagnostic lithic scatters, despite the absence of ceramics, may be associated with either the broader Archaic or Woodland periods. Typical of past surveys, Paleo-Indian, Early Woodland and 18th century period components are either absent or poorly represented in the presently limited sample (e.g., Braley 1988, 1989a, 1989b, 1990; Clement et al. 1997; Culpepper et al. 2000; Gray and McNutt 2003; Idol 1999; Idol and Becker 2001; Irwin et al. 1998; Loftfield 1979; Ruggiero 2003).

Prehistoric Components

Woodland period components, identified based on the presence of pottery or triangular projectile points, are not as well represented as expected, particularly in light of previous survey data (e.g., Braley 1989a, 1989b, 1990; Clement et al. 1997; Culpepper et al. 2000; Gray and McNutt 2003; Idol 1999; Idol and Becker 2001; Irwin et al. 1998; Loftfield 1979; Ruggiero 2003), and we observed no evidence of Early Woodland period components on any of the Woodland period sites, an enigmatic pattern common

across the Carolina Sandhills. The comparatively low frequency of Woodland period sites likely relates to the prevailing topographic or environmental settings of the disparate AFP/OPD survey areas. The micro-environmental conditions found in most areas surveyed are not typical of Woodland period site conditions in the Sandhills, where many such sites are found on lower elevation spurs or ridge toe slopes, local "lowlands," immediately adjacent to stream trunks or stream heads (e.g., Braley 1988, 1989a, 1989b, 1990; Clement et al. 1997; Culpepper et al. 2000; Gray and McNutt 2003; Idol 1999; Idol and Becker 2001; Irwin et al. 1998; Loftfield 1979; Ruggiero 2003).

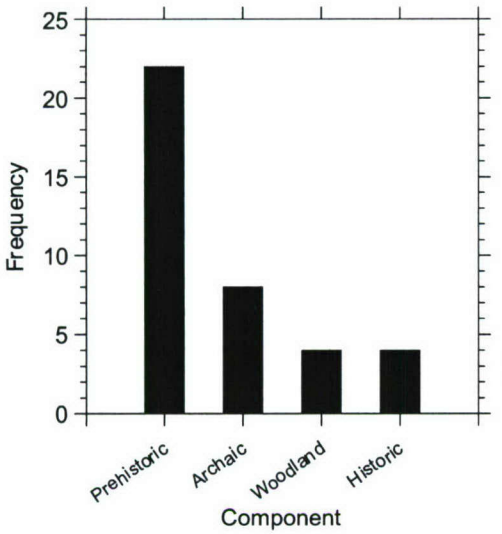

Figure 49. Bar chart of sites and occurrence components by broad chronological period.

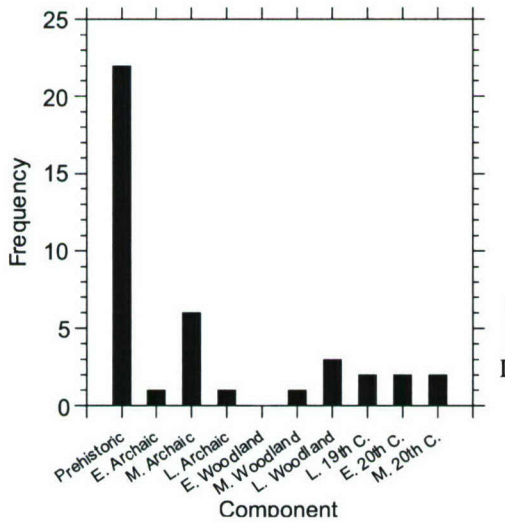

Figure 50. Bar chart of sites and occurrence components by specific chronological period (E.=Early; M=middle; L=Late).

While site size and artifact density estimates for the 15 prehistoric occurrences (i.e., ≤5 surface artifacts in a 50 m^2 area), are generally inconsequential isolates, it is useful to consider such estimates for the 19 prehistoric sites (Table 44). Although artifact densities for several nondiagnostic lithic scatters are relatively high (e.g., 31HK644, 31HK697, 31HK858) for the Sandhills, the calculations are skewed due

to the particularly small site sizes (<200 m^2). Many small lithic sites in the Sandhills exhibit comparatively higher artifact densities since they were primarily used for temporally discrete, but intensive lithic reduction or stone tool maintenance activities (see Ruggiero 2003; Trinkley et al. 1997), hence the general absence of formal tools or other chronologically diagnostic materials. When we consider site size, few of the sites (31HK642, 31HK649, 31HK668, 31HK864) investigated are high-density sites, where site sizes exceed 1000 m^2 and artifact densities are greater than 1/30 m^2. While the overall site size and artifact density estimates reported here fall within the range of variation found in previous Fort Bragg surveys (e.g., Irwin et al. 1998, Trinkley et al. 1997), it is interesting to note that the highest artifact densities are typically found on either single component Woodland period sites (e.g., 31HK64) or larger multi-component sites (e.g., 31HK642)[15] that include a Middle or Late Woodland period component (see Irwin et al. 1998). The reported survey data sheds little new light on prehistoric settlement patterns and land use activities in the Sandhills, complex issues liberally discussed in other recent Fort Bragg area survey reports. Despite the inherent sampling biases noted in the present survey data, the findings generally correspond with broad regional patterns variably reported and interpreted in other recent studies (e.g., Culpepper et al. 2000; Idol 1999; Idol and Becker 2001; Irwin et al. 1998; Ruggiero 2003) or site assessment (e.g., Benson 1999; Ollendorf 1997; Ollendorf and Higginbottom 1999).

Table 44. Site size and artifact density estimates for prehistoric sites (n=19).

Site Number	Component	Site Size (m^2)	Total Artifacts	Artifact Density (/m^2)	Artifact Density
31HK644	lithic scatter	150	12	1/13	0.08
31HK668	lithic scatter	2500	83	1/30	0.03
31HK689	lithic scatter	900	6	1/150	0.01
31HK691	lithic scatter	2500	17	1/147	0.01
31HK697	lithic scatter	100	10	1/10	0.10
31HK699	lithic scatter	600	62	1/10	0.10
31HK858	lithic scatter	200	10	1/20	0.05
31HK860	lithic scatter	375	10	1/38	0.03
31HK861	lithic scatter	1250	8	1/156	0.01
31HK864	lithic scatter	1300	53	1/25	0.04
31HK671	Middle Archaic	2500	7	1/357	0.003
31HK687	Middle Archaic	3600	55	1/65	0.02
31HK693	Middle Archaic	2000	64	1/31	0.03
31HK696	Middle Archaic	600	12	1/50	0.02
31HK698	Middle Archaic	1200	42	1/29	0.03
31HK863	Middle Archaic	2400	74	1/32	0.03
31HK643	Middle Woodland	2100	14	1/150	0.01
31HK642	Archaic/M-L Woodland	4500	172	1/26	0.04
31HK649	Late Woodland	390	222	1/2	0.50

[15] In 2003, the authors revisited site 31HK642 on AFP UU-102 to photodocument the degree of disturbance and range of environmental conditions found on Artillery Firing Points across Fort Bragg (Appendix C). After AFP UU-102 was burned and roller-chopped in 1999, the rate of surface erosion across the position apparently accelerated. While photographing the area, we recovered 200+ additional ceramic sherds, including 26 mends from multiple vessels, in-and-around surface Locus-B, the site's primary Woodland period deposition area. Given the surface distribution of sherds (approx. 50 m^2), the revised artifact density (1/7.5 m^2 [0.13]) for the Woodland period activity area, based on sherd counts alone (less lithic debitage), is moderately high for the Sandhills (e.g., Irwin et al. 1998; Trinkley et al. 1997).

Historic Components

Regarding the comparatively few historic period components encountered in the collective AFP/OPD surveys reported here, all six historic period components were found adjacent (40—100 m) to historic (pre-1918) road corridors (Table 45), many of which were cut through the longleaf pine forests in the late 18th or early 19th centuries (Heath 1999). Two historic occurrences (31HK631 and 31HK690) are clearly related to mid-20th century US Army activities, but the remaining sites and occurrences are associated with earlier Postbellum (ca. 1870—1918) farmsteads (31HK695, 31HK864) and pre-1918 agricultural (31HK669) or naval stores concerns (31HK863) in the Sandhills. Despite the ample historical and archaeological evidence for Colonial and Antebellum period occupations in the Sandhills (Loftfield 1979; Heath 1999; Steen 2005a, 2005b, 2006), material evidence of such early historic period land use was not encountered. The two house sites (31HK695, 31HK864) as well as the four observed occurrences are all situated on higher elevation upland landforms with minimal slope. As expected (Braley 1990; Clement et al. 1997; Loftfield 1979), proximity to historic transportation corridors, particularly in the uplands, away from major tributary streams, is a key component of Postbellum historic site and occurrence locations on Fort Bragg.

Table 45. Distance to stream and distance to water by broad time period for prehistoric sites (n=19) and historic period sites/occurrences (n=6).[16]

Statistic	Prehistoric Distance to Stream (m)	Historic Distance to Stream (m)	Distance to Historic Road
Minimum Distance	20	200	40
Maximum Distance	450	400	100
Median	200	325	70
Mean	231.1	320	70
Standard Dev.	115.7	70.7	27.0

Unlike the majority of the post-Civil War habitation sites surveyed on Fort Bragg, the Tower House (31HK695) and HH-101C (31HK864) sites, given the extensive soil disturbance, erosion and reasonably high surface visibility, yielded somewhat higher frequencies of artifacts compared to other late 19th-to-20th century house sites in the general region. While artifact densities between the two surveyed house sites range between 1/23 m^2 (0.04) and 1/17 m^2 (0.06), surface/shovel test artifact densities at other house sites on Fort Bragg more generally range between 1/250 m^2 (0.004) and 1/50 m^2 (0.02) at the survey (Phase I) level (e.g., Benson and Braley 1998, 2000; Clement et al. 1997; Gray and McNutt 2003; Ruggiero 2003; Trinkley et al. 1998). Although a few high density sites, based on survey (Phase I) data, have been reported (e.g., Heath 2001; Idol 2005; Trinkley et al. 1998), where artifact densities typically range between 1/25 m^2 (0.04) and 1/10 m^2 (0.10), such sites are exceptional and higher degrees of surface artifact exposure, due to clear-cutting for military training activities and subsequent erosion, usually account for the higher densities.

Despite the fact that the sample of historic components is minimal, we will take the opportunity to discuss a few archaeological issues germane to the study of historic period land use in the Sandhills. Explanations for low-to-moderate material abundance on most historic house sites in the Sandhills are potentially related to three very different phenomena. First, local farmsteads, hunt clubs and other properties inhabited ca. 1918—1922 were leased or sold, willingly or otherwise, to the US Army to form

[16] Mean distance-to-stream values for the reported AFP/OPD survey sites and occurrences are significantly higher than calculations reported for other surveys where more Sandhills environmental zones are represented (e.g., Braley 1990; Clement et al. 1997; Loftfield 1979; Ruggiero 2003). The calculations presented in Table 46 reflect the sample size and locational biases inherent with the circumscribed nature of Artillery Firing Point locations.

Camp Bragg. As such, most property owners had ample opportunity to remove personal belongings and equipment (e.g., farming, milling, blacksmithing, turpentining equipment) from structures on the various properties. In some instances, pre-1918 civilian houses and other buildings were sold for removal by the US Army (Adjutant General's Office 1922), or otherwise privately disassembled and removed from the military reservation after the government acquired the land (McColl Collection). When military personnel later demolished and razed the extant civilian structures after 1918 (Figure 51), few artifacts, other than previously discarded or lost materials, remained on these sites. Later, military engineers bulldozed certain house sites, which now exhibit prominent push-piles with composite matrices comprised of mixed soils, masonry rubble, timber fragments and historic artifacts (e.g., Heath 2001; Ruggiero 2003). As with prehistoric sites on Fort Bragg where surface artifacts are often exposed in disturbed or eroded areas, artifact hunters collect bottles and other materials (e.g., hand-made bricks, agricultural implements) from historic house sites (Steve Riley, Fort Bragg Natural Resources Division, personal communication). Indeed, through the early 1990s, past Garrison Commanders typically gave relic collectors permission to use metal detectors to locate and recover artifacts on known historic sites (Fort Bragg CRMP correspondence file 1992, 1997; Scott and Hunt 1998; Steve Riley, Fort Bragg Natural Resources Division, personal communication).

Figure 51. Circa, 1918 postcard illustrating the destruction of a civilian farmhouse on Camp Bragg (Fort Bragg CRMP Historic Images Collection).

Second, upland Sandhills soils are not especially conducive to large-scale cash-crop agriculture in the absence of intensive soil management through the application of fertilizers and other soil supplements that were not broadly available at economical prices before the early 20th century (USDA 1984). Thus, many of the pre-1918 smallholders and particularly the tenant farmers and sharecroppers who inhabited the region during the Postbellum era were largely restricted to subsistence farming (e.g., corn, "kitchen garden" crops), limited cash-cropping (e.g., cotton, fruit), livestock production, and tapping the surrounding longleaf pine forests for naval stores resources (Heath 1999; Phillips 2003).[17] Such

[17]Research (Heath 2001) on the Howard-McLauchlin farmstead site (31CD860), located south of the Lower Little River, indicates that the farm's Postbellum operators, the James A. R. Howard family, focused their economic efforts on small-scale cotton production, truck-farming (market vegetables), subsistence farming, naval stores production (pine gum, tar and pitch), and guiding hunting parties. Family letters (ca. 1878—1920) indicate the planting of a long list of subsistence (human and domestic animal) crops and cash crops (e.g., corn, rice, wheat, sweet potatoes, oats, chufa tubers ["earth almond"], field peas, cabbage, potatoes, beans, sugar cane, oats, watermelons, cantaloupes, grapes "garden vegetables,"). Hogs, beef cattle and chickens were raised for subsistence

economic foci generally produced minimal cash incomes and both landowners and tenants only accrued limited discretionary funds to spend on manufactured consumer goods. Although several large-scale "turpentine plantation" operations existed in the Sandhills before the Civil War, many such estates generally withered into obscurity as their debt-ridden owners struggled through Reconstruction without their former labor pool of enslaved blacks. Moreover, the economic potential of such holdings paled in comparison to wealthier plantations found in the Coastal Plain and Piedmont where soil conditions were much more conducive to large-scale rice or cotton production before the Civil War, and tobacco production in the later Postbellum period (Heath 1999; Phillips 2003).

Third, as a local informant "raised up" in the Fort Bragg vicinity suggested, most families typically removed garbage and other debris from the home site areas and discarded such material in deep ravines and gullies, often hundreds of meters away from primary household activity areas (Steve Riley, Fort Bragg Natural Resources Division, personal communication). Similar patterns of refuse disposal have been noted in other studies of late 19th century farmsteads in the Southeast (e.g., Cabak and Inkrot 1997), and much lower than expected artifact densities are oft observed at 19th-to-20th century farmstead house sites on Fort Bragg (Steen 2005a, 2005b). Based on the "standard" survey methods employed on Fort Bragg, ravines and slopes are rarely tested for archaeological deposits (XVIII Airborne Corps and Fort Bragg 2001). If the oral history information on refuse disposal was generally true across time and space in the Sandhills, then much of the historic era archaeological material deposited in middens will be missed given standard survey methods. Moreover, recent historic site investigations, combining close-interval (2.5—5.0 m) shovel testing and metal detector surveys (e.g., Heath 2001; Irwin 2001; Steen 2005a, 2005b), demonstrated that dense artifact concentrations across relatively large farmstead sites are often clustered, but widely separated. While survey methods can be adjusted to intensively assess sprawling agricultural complex sites in the Sandhills, other cultural factors (e.g., landowner vs. tenant sites) must be considered to account for low-artifact densities, even where more appropriate survey methods are employed on historic sites.

Recovered Material Culture

A total of 1,277[18] artifacts were recovered from the AFP/OPD survey sites and occurrences described in this report. General aspects of the major prehistoric and historic artifact classes reported in the individual site and occurrence descriptions are respectively discussed below. Typical of prehistoric artifact assemblages from the Carolina Sandhills, the aggregate prehistoric assemblage largely consists of quartz and metavolcanic lithics, including tool-making or tool-maintenance debitage (n=630), a small, but noteworthy quantity of formal (e.g., projectile points, scrapers) or informal (e.g., retouched flakes, reworked cobbles) tools (n=38), worked cores (n=6) and fire-cracked rock (n=22). No Coastal Plain chert materials were recovered, but the lithic assemblage further includes several multi-functional, quartzite cobble tools (n=3) and a small quantity of metasedimentary debitage (n=8). The combined lithic debitage-to-formal/expedient tool ratio is roughly 14:1. A moderate quantity of ceramic sherds (n=268) round-out the prehistoric artifact assemblage. The historic components yielded some 450 historic period artifacts discussed below and in Section IV.

Given the limited sample size and the variability in the field methods (see Section III) employed in each survey sub-area (surface collection vs. subsurface recovery), as determined by specific project

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as well as income. Several letters indicate that salt-cured hams and "pork" were sold in local markets. The family larder was further supplemented by bird hunting (Edison collection [Fort Bragg CRMP Manuscripts Collection]).

[18] Total does not include some 200+ sherds and sherdlettes later recovered in 2003 from recently eroded areas of site 31HK642—see above footnote n. 15.

area conditions (intact soil column vs. deflated soil column), direct material comparisons between sites are problematic. As such, we cannot readily assess diachronic patterns in tool-to-debitage ratios or frequencies of certain prehistoric tool types. Our discussion of historic period artifacts, primarily kitchen group ceramics or glass and architectural materials, is equally limited because of the small sample size.

Prehistoric Lithics

Although we discussed the characteristics of the individual site and occurrence artifact assemblages in the previous section (Section IV), some coarse-grained analytical aspects of the aggregate lithic inventory are of general interest. When debitage, tool-making and tool maintenance by-product (flakes, flake fragments, core shatter) assemblages from all sites and occurrences are combined, quartz materials predominate and account for approximately 74% (n=469) of the recovered debitage, while metavolcanic (25%, n=161) and metasedimentary (1%, n=8) materials account for the remainder (Figure 52). If we consider formal (i.e., projectile points, bifaces, formal scrapers), expedient (i.e., retouched flakes, retouched cobbles) tools and proto-tools (i.e., bipolar cores, freehand cores), independent of debitage, the broad material type proportions are roughly equal.[19] Metavolcanic tools (formal and expedient) account for 48% (n=21) of the combined tool assemblage, and 52% (n=23) of the tools (formal and expedient proto-tools) are quartz. The material breakdown by broad tool type is somewhat more informative (Figure 53). Although the majority of the formal projectile points and formal scrapers are of metavolcanic material (67%, n=12), the majority of the expedient tools (73%, n=8), including retouched flakes and worked cobble tools are quartz. Similar local material use patterns are further explored in Brannan and Irwin (i.p.). The basic attributes for *diagnostic* projectile points/knives are presented for future comparative purposes in Table 46—refer to Section IV for illustrations of selected specimens.

Table 46. Material and metric attributes of recovered (chronologically diagnostic) projectile points/knives.

CSPP Type	Site Number	Site Chronological Period	Material Type	Maximum Length (mm)	Maximum Width (mm)
Hardaway-Dalton	31HK636	Early Archaic	metavolcanic	*	*
Hardaway side-notched	31HK863	Middle Archaic	quartz	*	28.0
Kirk Corner-notched	31HK687	Middle Archaic	metavolcanic	*	16.5
Kirk Corner-notched	31HK693	Middle Archaic	metavolcanic	*	28.0
Kirk Corner notched	31HK693	Middle Archaic	metavolcanic	52.0**	22.0
Kirk Corner-notched	31HK696	Middle Archaic	quartz	*	30.5
Stanly	31HK698	Middle Archaic	metavolcanic	*	27.0
Morrow Mountain I	31HK698	Middle Archaic	quartz	35.5**	25.0
Morrow Mountain II	31HK671	Middle Archaic	metavolcanic	28.0	19.5
Guilford	31HK863	Middle Archaic	quartz	*	18.0
Small Savannah River	31HK875	Terminal Archaic	metavolcanic	38.0	23.5
Caraway/Roanoke	31HK642	Middle/Late Woodland	quartz	14.5	15.0
Yadkin	31HK649	Middle/Late Woodland	quartz	*	23.0
Pee Dee	31HK686	Late Woodland	metavolcanic	21.0**	19.0

*Broken projectile point/knife--missing elements necessary to estimate measurement.
**minimal tip loss—length approximated.

Despite assertions to the contrary (e.g., Braley 1990; Braley and Schuldenrein 1993; Idol and Becker 2001; Ruggiero 2003), there is little evidence that the indigenous peoples who moved in and out of the Sandhills during their seasonal foraging rounds focused their formal lithic industry on local, generally poor-quality, metavolcanic stone sources. Regardless of the known presence of small

[19] Totals do not include multi-functional quartzite tools (percussion/polishing/grinding stones) from site 31HK643.

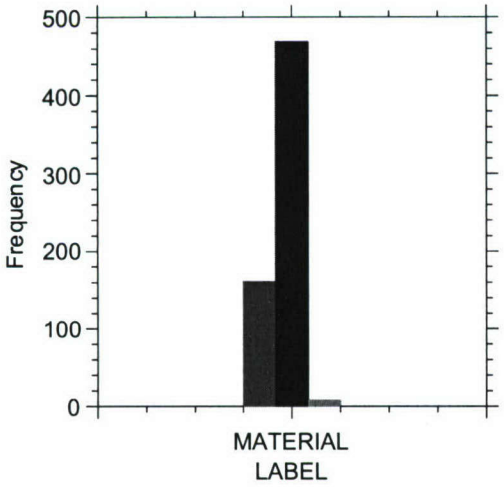

Figure 52. Bar chart of aggregate lithic assemblage (tools and debitage) by raw material type.

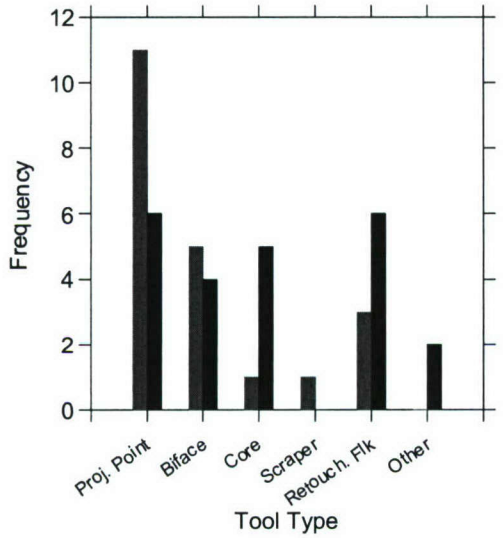

Figure 53. Bar chart of formal and informal tools by raw material type.

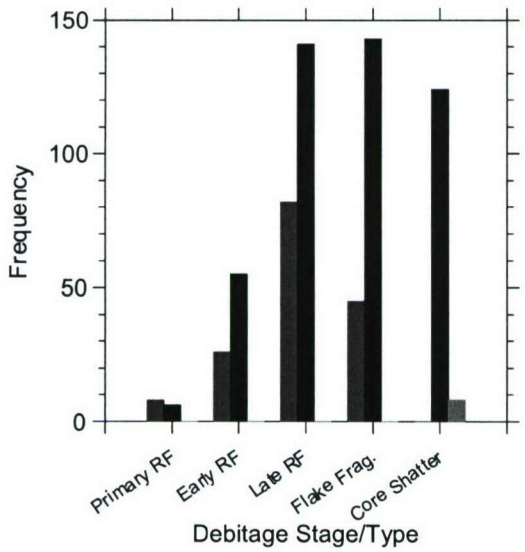

Figure 54. Bar chart of debitage reduction stages/types by raw material type (RF=Retouched Flake).

metavolcanic rock outcrops in Moore County, or metavolcanic pebbles or cobbles in local rivers and steams, there is little current evidence that these sources were utilized to any significant degree by Archaic or Woodland period peoples in the Sandhills. In fact, ongoing studies, where metavolcanic stone samples from various source locations have been compared against lithic debitage and tool assemblages from Fort Bragg, support this general observation. Moreover, the rarity of corticated primary debitage from weathered metavolcanic quarry nodules or water-worn river cobbles further suggests that biface blanks or rough performs were principally fashioned and transported for local use from distant quarry locales outside the Sandhills, primarily the Uwharrie Mountains (see Benson 1999). Localized lithic material acquisition during much of the prehistoric period appears to have focused more on near surface vein quartz deposits on the south side of the Lower Little River or in quartz deposits along major regional waterways, such as the upper Lower Little River, tributaries such as Crane's Creek, or several Moore County streams to the west of Fort Bragg (Brannan and Irwin i.p.). Use of suitable quartz cobbles found in streambeds, contrary to earlier assumptions, seems to have been more limited. Quartz deposits of quality sufficient for lithic tool production are not necessarily widely available in the Sandhills and are apparently limited to particular localities (Brannan and Irwin i.p.). While localized metavolcanic materials in various depositional forms were certainly available and sporadically used in some quantity, the general prehistoric use of such materials presently appears limited.

Although the present sample of chronologically diagnostic tools reported in Section IV is too small to assess shifting material use period-by-period, the broad patterns are suggestive of selective raw material use for particular tool types or classes over time. Prehistoric peoples appear to have focused on the acquisition and use of extra-local and local metavolcanic materials for projectile point and biface production, but such tools were primarily made, or at least initially reduced, to produce large biface blanks or early-stage preforms outside the Sandhills. Alternately, prehistoric peoples appear to have principally produced many less formal tools, such as worked cobble or expedient flake tools, on-site in the Sandhills from locally acquired quartz cobbles or nodules. The higher frequency of quartz early reduction flakes, combined with corticated primary flakes and quartz core shatter, in the debitage assemblages discussed in Section IV reflects this broad pattern (Figure 54). Moreover, the reduction of raw nodules and cobbles typically generate higher frequencies of debitage than does the reduction of previously reduced quarry blanks or performs. Thus, the general preponderance of quartz debitage over metavolcanic debitage in the aggregate site assemblages (Figures 52 and 54) further support the observations offered here.

The aggregate debitage-to-tool ratios calculated for the sites and occurrences reported here support the inferred behavioral pattern, whereby the quartz debitage-to-tool ratio is roughly 20:1 and the metavolcanic debitage-to-tool ratio is approximately 8:1 (tools=formal tools, expedient tools, proto-tools). These general observations are echoed in a recent study of Early Archaic period settlement patterns by Moore and Irwin (2002). Moore and Irwin (2002), in their assessment of Early Archaic tools and debitage from suggested upland base camps on Fort Bragg (31HK23 and 31HK118), found that quartz debitage was significantly more frequent than metavolcanic debitage, but that the majority of the formal tools and bifaces from the two sites were made from non-local metavolcanic materials. Moore and Irwin (2002:7) conclude, "Expedient unifacial tools and 'thumbnail' endscrapers made from quartz were used extensively by Early Archaic inhabitants to supplement and to conserve more formal unifaces [and curated bifaces] made from non-local slate belt rhyolite."

Prehistoric Ceramics

Two hundred sixty eight prehistoric ceramic sherds, primarily from surface contexts, were recovered from three Woodland period sites.[20] While of broad chronological value in determining time

[20] Totals here and in Table 47 do not include some 200+ sherds and sherdlettes later recovered in 2003 from more recently eroded areas of site 31HK642—see above footnote (1).

frames of land use at the individual site level, the overall assemblage is generally too weathered and fragmented to extract attribute data beyond paste characteristics, temper elements and surface treatments. The general attributes exhibited by the reported assemblage (Table 47) compare favorably to other Middle and early Late Woodland period ceramic assemblages from the Sandhills, but provide no particularly revealing information to revise the current working typology as most recently expanded and refined by Herbert (2000, 2002, 2003; Herbert et al. 2002). No unusual series, types, varieties or vessel forms are represented in the sherd assemblages from the three small Woodland period sites that yielded ceramics, which are all associated with the Cape Fear and Hanover series. As such, we opted not to include sample illustrations of the recovered materials in Section IV. The data presented in Table 47 generally reflects the known regional "displacement" of cord-marked vessels by fabric-impressed containers during the Middle-to-Late Woodland period in the Sandhills as noted by Herbert (2002, 2003; Herbert et al. 2002).

Table 47. Frequencies of prehistoric ceramics by surface treatment and temper (sites 31HK642, 31HK643, 31HK649).

*Temper (Period)**	**Plain Finished**	**Fabric-Impressed**	**Cord-Marked**	**Indeterminate**	**Totals**
Sand (MW Cape Fear II series)	39 (14.5%)	49 (18.3%)	-	16 (6.0%)	104 (38.8%)
Sand with Grog (MW Hanover I series)	4 (1.5%)	22 (8.2%)	1 (0.4%)	2 (0.7%)	29 (10.8%)
Grog with Sand (LW Hanover II series)	3 (1.1%)	132 (49.3%)	-	-	135 (50.4%)
Totals	46 (17.1%)	203 (75.8%)	1 (0.4%)	18 (6.7%)	268 (100%)

*MW=Middle Woodland; LW=Late Woodland.

Historic Artifacts

The historic artifact assemblages recovered from the reported sites and occurrences, despite the locally higher than expected artifact densities on the two former house sites, are not particularly unusual or especially remarkable in terms of qualitative diversity in relation to regional survey level (Phase I) site assemblages. The Tower House (31HK695) and HH-101C (31HK864) sites represent the heavily disturbed remains of small Postbellum farmstead house sites, built and occupied by smallholder or tenant families for a few decades before 1918. Contemporaneous Sandhills farmstead or turpentine plantation house sites, respectively operated by middling farmers or wealthier landowners, typically yield a greater frequency and qualitative diversity of artifact types and functional groups (e.g., Carnes-McNaughton 2003; Heath 2001; Idol 2005; Irwin 2001; Steen 2005a, 2005b, 2006[draft]). The artifact densities and horizontal distributions of materials from the reported house sites, however, provide additional insight in the absence of intensive archival research on the sites.

Although we have not systematically studied such patterning on Fort Bragg, the dispersion of artifacts around Sandhills house sites may be indicative of owner versus tenant consumer behavior and disposal patterns. In the neighboring South Carolina Sandhills, Cabak and Inkrot (1997) studied sheet midden accumulations on late 19th and early 20th century operator/owner and tenant/sharecropper domestic sites. They found systematic sheet midden size differences (ft^2) between the two types of occupancies. The *average* square footage of sheet middens was 76,000 and 46,000 sq. ft. respectively for operator/owner and tenant/sharecropper sites (Cabak and Inkrot 1997). If similar general patterns hold throughout the greater Sandhills region across the two Carolinas, then site 31HK695 (Tower House site) with its 71,000 sq. ft. midden likely represents a house inhabited by the farm owner's, A. L. Gilliland, family, while site 31HK864** (HH-101C site) with a 44,000 ft^2 midden probably represents a house

occupied by tenants associated with the Campbell Estate. These observations are tentative and perhaps problematic in that the formation processes impacting the two sites, especially in the later 20th century, are likely different—the intensity and nature of US Army training impacts have not been the same on each site. As such, the observed midden size differences noted here, at least based on the present survey level data, may be wholly spurious.

The higher frequencies of liquor bottle, medicine bottle and glass tableware fragments at site 31HK695, compared with materials from site 31HK864, may further indicate differences in relative social status (Tables 22 and 39). As compared to tenant house sites, Orser et al. (1987), found that such materials occurred in relatively higher quantities on Postbellum house sites occupied by owners in South Carolina. Such archaeological patterns support the general inferences gleaned from our basic documentary research on the two sites as briefly discussed in Section IV. Interestingly, Orser et al. (1987) found no distinct differences in the ceramic assemblages from owner and tenant house sites. Although the glass sample sizes are comparable, in terms of raw counts, between sites 31HK695 and 31HK864, the ceramic samples are not. Thus, we cannot readily compare the two ceramic assemblages. Overall, the ceramic fragments from the sites are notable for their austerity and low frequency of decorated wares (Tables 23 and 40), a pattern typical of many late 19th—early 20th century assemblages recovered from local sites (e.g., Benson and Braley 1998; Braley 1989a, 1989b, 2000; Clement et al. 1997; Idol 1999; Idol and Becker 2001; Ollendorf 1997; Ollendorf and Higginbottom 1999; Ruggiero 2003). Since no systematic studies of historic material culture from the Sandhills have been offered in recent historic site assessments (Idol 2002; Ollendorf 1997; Ollendorf and Higginbottom 1999; Steen 2005a, 2005b), we cannot offer more specific inferences regarding consumer behavior, socio-economic status or ethnicity of the former occupants of sites 31HK695 or 31HK864.

Management Recommendations

Based on field observations of apparent surface or subsurface site disturbances as well as post-survey data assessments, it is not likely that the 36 sites and occurrences reported here will provide further significant information about the prehistory or history of the Carolina Sandhills. Essentially, all reported sites are either completely destroyed or retain little contextual integrity. In other cases, artifact densities were either low, or simply reflect incidental (i.e., occurrences, isolates) prehistoric or historic period use of the Sandhills landscape. Behavioral isolates are of interpretive value, such as projectile points lost in hunting activities, but such activity loci require no further archaeological assessment. Accordingly, all reported sites and occurrences are, based on eligibility criteria necessary for inclusion on the National Register of Historic Places, ineligible for listing on the NRHP. We recommend no further investigation of these 36 sites and occurrences. The reported site locals, both AFPs and OPD CP bunker locations are cleared, in terms of cultural resources issues, for all future ground disturbing military training, construction or Land Rehabilitation and Maintenance program activities.

Assessment of LRAM AFP Maintenance Impacts on Sandhills Sites

The severity of past ground disturbances on Artillery Firing Positions are highly variable, as the descriptions and images in Appendix C illustrate. As such, archaeological sites eligible for listing on the NRHP may yet exist on unsurveyed AFPs located on Fort Bragg. Although past field artillery training activities destroyed many archaeological sites, including those described in this report, we cannot simply categorize AFPs as "developed" or "destroyed" land areas, hence exempt from cultural resources surveys. Indeed, four investigated AFP sites (31HK688, 31HK850/857, 31HK862, 31HK1646), not included in this report, were recommended as eligible for listing on the NRHP, three of which have been since further assessed at the Phase II level (31HK688 [Idol 2002], 31HK862 [Herbert and Irwin 2006], 31HK1646).

For future AFP surveys, we should consider, depending on the pre-survey conditions (Appendix C) of a given AFP, possible alternative survey methods. Since most AFPs, especially Condition Category IV—VII areas (Appendix C) are moderately-to-heavily disturbed, plowing or roller chopping and burning such locales before archaeological surveys are conducted may prove beneficial. As we found at AFP UU-102, the location of the Iron Butterfly site (31HK642), LRAM actions, which included roller chopping and burning, on the AFP dramatically increased surface visibility and exposed hundreds of artifacts not recovered in the original surface collection and shovel test surveys. Based on the artifact distributions recorded in the initial surveys, the LRAM clearing actions did not significantly affect the horizontal distribution of the artifacts. Given that the artifacts' vertical contexts were altered or destroyed many decades ago, little significant contextual data was adversely effected by LRAM actions on the site. Indeed, more information (e.g., expanded site boundaries, an additional activity locus, additional diagnostic artifacts) on the site was gathered in the wake of LRAM clearing activities than was lost.

Alternately, where AFPs are found minimally disturbed (Condition Category I—III areas), standard survey techniques (e.g., surface collection, systematic shovel testing) should be implemented to thoroughly investigate the areas for potentially minimally disturbed sites before LRAM actions are undertaken. As we found at AFPs CC-002 and HH-101, respectively sites 31HK862 and 31HK688, some site retain a relative degree, despite past training disturbances, of both horizontal and vertical integrity. In such instances, tree removal, roller chopping and burning would likely impact site integrity, especially on historic period sites (e.g., 31HK688) where artifacts are often recovered at or near (0—20 cmbs) the modern ground surface. Cursory observations of LRAM actions suggest that subsurface disturbances from machine operations range from 0—30 cmbs. The depth of disturbance is obviously much greater when large trees are removed or roller chopped and burned surfaces are further graded with bulldozers. Thus, minimally disturbed sites on AFPs must be further tested (Phase II) before the AFPs are approved by the Fort Bragg CRP for unrestricted military training or LRAM activities. When AFPs are surveyed in the future, preliminary evaluations should be undertaken to conservatively determine the appropriate Condition Categories (see criteria in Appendix C) for each position. Based on the individual condition determinations, appropriate survey methods should be selected from the range of available options, including roller chopping and burning heavily disturbed AFPs before final survey.

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APPENDICES

Appendix A:

Fort Bragg Cultural Resources Management Program
Object Catalog Manual

HEADINGS AT TOP OF ARTIFACT INVENTORY SHEET

PROJECT NO.: number assigned by Fort Bragg Cultural Resource Lab to the survey or data recovery project. It contains the year followed by a hyphen and an arbitrary sequential number (i.e., 1997-2).

SITE NUMBER: number assigned as the site designation by the North Carolina State Historic Preservation Office (SHPO). The state number (31), following by the county alphabetic designation (i.e., HK, CD), followed by an arbitrary, sequential number (i.e., 31HK118).

SITE NAME: name assigned to the site by the survey team (i.e., Yucca Ridge Site).

ACCESSION NO.: number assigned by SHPO to designate a group of material collected from a specific site at a specific time. The first two digits are the year the collection was made, what follows is an arbitrary sequential number (i.e., 97128).

HEADINGS AT TOP OF COLUMNS

ACCESSION: This number is the last part of the complete accession number for each group of similarly classified artifacts. It consists of a letter representing the artifact type followed by an arbitrary sequential number. Each group of identically classified artifacts will be recorded as some line of data and will be assigned a unique accession number. The complete accession number will consist of the SHPO-assigned accession number for the collections, with the addition of an alphanumeric code for object class, and a sequential number for each unique class of objects. For example, a collection consisting of three early reduction flakes, four pottery fragments and one projectile point, with the SHPO-assigned accession number of 97128, would be catalogued in three lines of data with accession numbers 97128m1, 97128p2 and 97128a3. The letter codes for artifact types are:

m = miscellaneous	flakes, shatter, fire cracked rock, daub
p = pottery	historic and prehistoric ceramic sherds
a = artifact	lithic tools, bifaces, cores; historic artifacts (i.e., glass, metal)
eb = ethnobotanical	nut, shell, charcoal
f = faunal	bone

Each diagnostic artifact will be catalogued by having the site number written on it above the complete accession number as its permanent label, or on a tag in the artifact bag, if the item is too small. All artifacts are to have a permanent label. If there is a large number of one artifact type a bag label is required—however, only 20% of the large number of artifacts need be permanently labeled.

Examples:

Projectile Point:	31HK118 97124a1
Flake:	97124m2

UNIT. This is the transect/shovel test pit or test unit designation. For example: Transect 1, Shovel Test 2 would have a designation of T1-2; Test Unit 4 would be 4.

LEVEL. This is the sequential number designation for the arbitrary stratigraphic level in which the artifact was found. These are usually in 10cm levels (i.e., Level 1=0–10cm, Level 2=10–20).

FS NO. The field specimen (FS) number is an arbitrary sequential number assigned to a specific artifact when point plotted or to a bag of artifacts from a certain provenience.

COUNT. The number of artifacts with the particular attributes and accession number listed.

ARTIFACT GROUP. A letter code for the gross classification for type of artifact. The most common artifact types are:

BOT	Botanical (ethnobotanical)
F	Faunal
G	Glass
HC	Historic Ceramic
OH	Other Historic
L	Lithic
M	Metal
PC	Prehistoric Ceramic
SH	Shell
S	Soil

Less commonly used artifact codes:

AR	Archive (historical documents and copies)
BM	Burial Marker (cemetery headstone)
D	Document (project records)
GEO	Geology (raw material type collection)
OV	Overhills Portable Property Collection

ARTIFACT TYPE. A letter code for the specific artifact name. Common codes for these columns are as follows (see attached Appendix B for more detail):

Lithic

PP	Projectile Point
SS	Sidescraper
EB	Biface, Early Stage
MB	Biface, Middle Stage
LB	Biface, Late Stage
IB	Biface, Indeterminate
OB	Biface, Other
TC	Cobble, Tested
BC	Core, Bipolar
FC	Core, Freehand
DR	Drill
ES	Endscraper
PRF	Flake, Primary Reduction
ERF	Flake, Early Reduction
LRF	Flake, Late Reduction
FF	Flake Fragment
RF	Flake, Retouched
UF	Flake, Utilized

Metal

BO	Bolt
BUL	Bullet (mini Ball, Musket Ball, projectile not shell casing)
BUT	Button
CA	Can
CN	Nail, Cut
N	Nail, Wire
NU	Nut
SHL	Shell casing
SHT	Shot (small) lead
SP	Spike
UD	Unidentified
WA	Washer
WI	Wire

Lithic (cont.)

BRF	Flake, Bipolar Reduction
DF	Flake, Denticulate
GF	Flake, Graver
NF	Flake, Notched

Faunal/Botanical

CH	Charcoal
N	Nut
S	Shell

CS	Core Shatter
FCR	Fire-Cracked Rock
HS	Hammerstone
MN	Mano
SB	Steatite Bowl

Historic Ceramic

BG	American Blue/Grey Stoneware
BU	Buckley
CW	Creamware
CD	Earthenware, Coarse, Buff-bodied
RB	Earthenware, Refined, Buff-bodied
IS	Ironstone
JF	Jackfield
PW	Pearlware
PO	Porcelain
CR	Red Earthenware, Coarse
RR	Red Earthenware, Refined
RK	Rockingham
SW	Stoneware
UD	Unidentified
WE	Westerwald Stoneware
WS	White Salt-glazed Stoneware
WW	Whiteware
YW	Yellowware

Prehistoric Ceramic

DEP400	Deptford
HAN700	Hanover
NEW500	New River/Deep Creek
UNK000	Unknown
YAD1800	Yadkin

Glass (see surface type for color)

The glass code should have a color prefix.
Example: CL C = clear curved
Both color and type are included in this column.

BOT	Bottle
C	Curved (ud)
F	Flat (window)
J	Jar
L	Lamp
M	Melted (ud)
T	Tableware

MATERIAL TYPE. A letter code for lithic raw material, prehistoric ceramic temper, metal, or other historic material type. Codes for this column are:

Lithic Raw Material

C	chert
FLD	feldspathoids
FBR	flow banded rhyolite
GST	greenstone
FC	ferracrete
MV	metavolcanic
Q	quartz
QZT	quartzite
R	rhyolite
SST	sandstone
MSS	siltstone
S	Steatite
MMR	Mill Mountain Rhyolite: quartz phenocrysts
SLR	Sugar Loaf Mountain Rhyolite: clear (quartz) and white (plagioclase) phenocrysts
WDR	Wolf Den Rhyolite: white (plagioclase) phenocrysts
UD	unidentified

Temper

CAL400	calcite
CLY200	clay
FIB500	fiber
GRG300	grog
NON000	none
QTZ154	quartz (crushed)
OCS600	other crushed stone
SND110	fine sand
SND120	med. Sand
SND130	coarse sand
UD	unidentified

Metal

B	brass
AL	aluminum
C	copper
I	iron
PB	lead
ST	steel

Other

L	leather
P	plastic

SURFACE TYPE. A letter code for the surface treatment of a prehistoric ceramic sherd or the decoration of an historic ceramic sherd. For all other artifact categories (including glass) leave this column blank. If there is no observable surface, leave column blank. If HP or TP is overglaze, mention in "comments section, otherwise, all are assumed to be underglaze. For historic ceramics, combine color with technique, listing color first. (Note: This may be redundant info depending on which artifact type code was chosen.) Codes for this column are:

Historic Ceramic (technique)

AS	albany slip
AN	annular
BS	bristol slip
BAS	bristol/albany slip
CG	color glazed
DE	decal
FE	feather edge
FL	flow
G	glazed
HP	hand painted
IN	indeterminate
MD	mocha decorations
	finger whorl/dendritic
MR	molded rim
P	plain
PCT	polychrome transfer
RKH	Rockingham
SG	salt glazed
SC	scratch blue
SE	shell edge
S	slipped
SR	spatter
SP	sponge
TP	transfer print
UD	unidentified
MB	molded body

Color (glass and Hist. Ceramics)

(list color first for HC)

AM	Amber
AQ	Aqua
BK	Black
BL	Blue
BR	Brown
CL	Clear
GR	Green
GY	Gray
LU	Luster
MB	Mulberry
PL	No color
PC	Polychrome
P	Purple
PK	Pink
RD	Red
SO	Solarized
YE	Yellow

Prehistoric Ceramic

BUR800	burnished
CRD400	cord marked
CWS500	cord-wrapped stick
FAB600	fabric impressed
NET300	net impressed
NON000	none (plain)
PUN900	punctate
SMO100	smoothed or eroded
TM200	stamped

PORTION. Letter code for artifact portion. Codes for this column are:

Projectile Points and tools

DS	Distal
MS	Midsection
PX	Proximal
WH	Whole

Other

F	Fragment
UD	Unidentified
WH	Whole

Prehistoric/Historic

BS	Base
B	Body
H	Handle
L	Lid
LP	Lip
NK	Neck

Ceramic/Glass if shape known add prefix listed below

B	Bottle
B	Bowl
CO	conical (prehist)
C	Cup
F	flat (prehist)
J	Jar

R	Rim	P	Plate

Prehistoric/Historic		Ceramic/Glass if shape known add prefix listed below	
ST	Stem	S	Saucer
WH	Whole		

SIZE. Numerical representation of the size category for an artifact. Codes for this column are:

<1cm * For prehistoric ceramics use only 2, 4 and 7
1–2cm *
2–3cm
3–4cm *
4–5cm
6–7cm
>7cm *

WEIGHT. Weight of artifact or group of artifacts in grams to first decimal place.

DESCRIPTION. Comments or note field if necessary.

LITHIC ARTIFACT CLASSES

CORES:
Freehand Cores (FC)
Bipolar Cores (BC)

NON-FLAKE CORE DEBRIS:
Tested Cobbles (TC)
Core Shatter (CS)

DEBITAGE:
Primary Reduction Flakes (PRF)
Early Reduction Flakes (ERF)
Late Reduction Flakes (LRF)
Bipolar Reduction Flakes (BRF)
Flake Fragments (FF)

FLAKE TOOLS
Endscrapers (ES)
Sidescrapers (SS
Retouched Flakes (RF)
Utilized Flakes (UF)
Notched Flakes (NF)
Graver Flakes (GF)
Denticulate Flakes (DF)

BIFACES:
Early-stage Bifaces (EB)
Middle-Stage Bifaces (MB)
Late-Stage Bifaces (LB)

Projectile Points (PP)
Drills (DR)
Adzes (BA)
Other Bifaces (OB)
Indeterminate Biface Fragments (IB)

FIRE-CRACKED ROCK (FCR)

COBBLE TOOLS
Hammerstones (HS)
Manos (MN)

LITHIC CLASS DEFINITIONS

Lithic artifacts were analyzed within a framework that regards stone knapping as a reduction process, from the procurement of raw materials to the formation and maintenance of finished tools. The system used to classify lithic artifacts is, therefore, designed to be indicative of reduction stages, from pebble decortication, or initial core preparation, to flake production, bifacial thinning, and maintenance (Bradley 1975; Collins 1975; Shott 1994; Sullivan and Rozen 1985). Combinations of attributes, which identify one or more stages in the lithic reduction process or various periods in the use-life of the tool, can reliably classify lithic artifacts. Even the simple aspect of flake size has been demonstrated to be a powerful tool for identifying the technological processes that produced an assemblage (Ahler 1975, 1989; Ahler and Christensen 1983; Shott 1994:83–87). The taxonomic classes and inferred stages presented here are not intended to represent an invariable sequence in the reduction process, but it is assumed that statistical analysis of the debitage should be capable of identifying basic patterns in the sequence of reduction. As Amick and Mauldin (1989) point out, it is through such middle range studies, linking the process of reduction to attribute patterns in the tools and byproducts-products (debitage) that meaning is assigned to the archeological record.

Classificatory categories of lithic tools and debitage are outlined below. The attribute analysis records a series of variables for each specimen that forms a comparative data set. These data provide a basis for developing and testing hypotheses related to tool use, site activities and raw material acquisition.

CORES:

Blocks of raw stone, or cores, from which tools are fashioned, are subdivided into two categories that reflect different reduction strategies (freehand and bipolar).

Freehand Cores (FC). Freehand cores are defined as blocks or cobbles that have had flakes detached in multiple directions usually by holding the core in one hand and striking it with a hammerstone held in the other (Crabtree 1972). This procedure generates flakes that can be used for expedient tools or can be worked into formalized tools. Freehand percussion cores come in various shapes and sizes, depending upon the raw material, form and degree of reduction.

Bipolar Cores (BC). Bipolar cores are blocks or cobbles that have had flakes detached by direct hard-hammer percussion on a stone anvil. This technique is usually implemented by placing the core on the anvil and striking vertically with a hammerstone (Crabtree 1972; Hayden 1978). Cores typically exhibit heavy crushing and battering at both sites of impact with flake scars tending to be oriented down the vertical (usually the longer) axis of the core. Bipolar cores are normally smaller than freehand cores

because bipolar reduction is a technique for maximizing available raw materials. Most flakes that are detached are only suitable for expedient flake tools.

NON-FLAKE CORE DEBRIS:

This category comprises the non-flake by-products of tool manufacture which include: incipient cores or tested cobbles; cores and core fragments, and blocky debris. All of these have negative flake scars but no ventral scars that have not been subsequently utilized as a platform for further flake removals. Incipient cores or tested cobbles are blocks from which no more than three flakes have been removed. If more than three scars are observed, the block is classified as a core. Blocky debris or core shatter is defined, following Binford and Quimby (1963:278), as cubical or angular chunks that lack the well-defined negative bulbs of percussion, platforms, and regularity or symmetry of flake removal scars demonstrated by cores. Each of these subclasses is interpreted as representing the initial stages of biface or flake tool manufacture.

Tested Cobbles (TC). Tested cobbles are defined as blocks, or nodules that have had a few flakes struck from their margins, presumably to examine the knapping quality of the material.

Core Shatter (CS). Core shatter (sometimes called "blocky shatter" or "blocky debris") is defined as fragments that lack recognizable platforms (and therefore, cannot be oriented as to proximo-distal or dorso-ventral axes). These fragments are thought to result from failure of impact stresses to carry through the core in the conical pattern that typically produces flakes, instead, aborting the fracture along internal faults or fracture planes. Core shatter is common in quartz because of frequent internal fracture planes. It is thought to be produced more often in the early stages of the reduction process and is distinguished from flake shatter by nearly equivalent length-width-thickness ratios. Core shatter is distinguished from flake fragments by the absence of identifiable dorsal and ventral surfaces.

DEBITAGE:

Debitage or waste flakes exhibit evidence of removal from the parent core (a ventral or interior face), but no evidence of subsequent flake removal, retouch or utilization (no flake scars other than eraillures and pot-lids). Flakes exhibit recognizable dorsal and ventral faces and, if unbroken, also retain a striking platform and bulb of force. The debitage from Fort Bragg is classified according to size, raw material, platform configuration, and dorsal-face configuration (flake scars and cortex). Combinations of these categories allow the creation of new classes which represent primary, secondary, and tertiary stages of decortication on the basis of full, partial, or absent cortex and the identification of biface thinning flakes on the basis of platform lipping.

This classification system is designed to identify waste produced at each stage in the manufacture of bifacial implements. Application of lithic production trajectory models as a means of interpreting variation in waste flakes has several advantages. By allowing debitage patterns to be interpreted as arising from specific behavioral processes, variation is interpreted through models of culture chronology (Flenniken 1985; Johnson 1981b; Pitts and Jacobi 1979), social stratification (Young and Sheets 1975), and subsistence and settlement (Brose 1978; Goodyear 1974; Raab et al. 1979). Studies employing subsistence and settlement models in the interpretation of debitage data have been employed in attempts to explain variation in assemblages from the midsouth in terms of resource availability (Amick 1982, 1984; Johnson 1981b, 1982), environmental and demographic factors (Amick 1984), and specificity of site function (Hall 1985).

Primary Reduction Flakes (PRF). Decortication flakes are defined as having greater than 50% cortex on the dorsal surface, broad, unprepared platforms, thick bulbs of percussion, well defined eraillure scars, and ventral surfaces with clearly defined shock ripples of short amplitude. This class is designed to reflect flakes generated early in the reduction sequence by direct, hard-hammer percussion to a corticated pebble core or large quarried block. In assemblages such as those recovered in the Coastal Plain province, corticated lithic resources are expected to occur most often in the pebble (<64mm), not cobble (>64mm) size range. Such water-worn gravel is expected to include mostly quartz and quartzite rescues (with very little chert or metavolcanic material) occurring naturally as secondary water-transported deposits associated with present or former high-energy stream locations. Evidence of pebble-core technology is not expected to be common in the Coastal Plain and where it does exist, the small size of the pebble cores is likely to have encouraged a bipolar reduction strategy. Where the core block of miscellaneous metavolcanic stone or rhyolite was weathered before reduction began, dorsal cortex may be present on early-stage flakes, however, as most metavolcanic material is expected to have been quarried, decortication flakes are expected to be very infrequent in debitage assemblages of metavolcanic materials.

Early Reduction Flakes (ERF). Early reduction flakes are generally thicker than late reduction flakes and should exhibit the same evidence of hard-hammer percussion as described for the PRF (pronounced bulbs of percussion and eraillure scars, and clearly defined shock ripples). ER flakes are defined as having less than 50% cortex, few flake scars on the dorsal surface, cortex remnants on platforms or platforms lacking remnant bifacial margins (no evidence of multiple scar remnants and no evidence of lipping on platform). For rhyolite and metavolcanic flakes, cortex attributes are not applicable; determinations are based on the thickness, ventral surface and platform morphology.

Late Reduction Flakes (LRF). Late reduction flakes result from biface thinning, shaping, and resharpening. Late-reduction flakes should not exhibit evidence of hard-hammer percussion (less pronounced bulb of percussion, diffuse shock ripples of longer amplitude on ventral face). Late reduction flakes exhibit many shallow, often overlapping flake scars on the dorsal face and platforms typically consist of remnant bifacial margins (some of the remnant margin extends onto the ventral face of the flake creating the characteristic "lipping"). Such platforms are often prepared with some degree of grinding. Bulbs of percussion and eraillure scars are diffuse, often not observable.

Bipolar Reduction Flakes (BRF). Bipolar reduction flakes exhibit evidence of opposing impact from hard hammer percussor and anvil. Platforms are typically not prepared, but are crushed and splintered. If the bipolar flakes are struck from corticated cores, flakes may take the form of *pieces esquilles* or wedge-shaped sections with cortex or partial cortex on the narrower face of the wedge. Lacking clear evidence of platforms, much of bipolar debris will be classified as Core Shatter.

Flake Fragments (FF). Flake fragments are defined as broken flakes that lack platforms and therefore cannot be oriented along the proximo-distal axis or assigned to the flake categories defined above, but which nonetheless retain the characteristics of dorsal and ventral morphology sufficient to identify them as flakes.

FLAKE TOOLS:

This category includes both utilized non-retouched flakes and flakes with retouched margins, whether bifacial or unifacial. Distinction between marginal attrition resulting from use,
and that produced by purposive retouch, is commonly based on the size, depth, and especially the spatial regularity of scars. Although the pattern of flake removal scars arising from the use of an unmodified flake has a potentially wide range of variability, edge wear formed in this way is expected to be characterized by smaller, shallower scars, often superimposed in multiple steps, irregularly spaced and

occurring on a restricted area of the flake. The margins of a retouched flake are expected to show scars of greater depth and breadth more regularly spaced and extending over a greater length.

Accurate distinctions between flake margin attrition arising from retouch and from incidental use may be impossible to make. It is possible, for example, that a flake with an acute margin would be backed or dulled by scraping that edge steeply against another stone, a piece of bone, or wood. The resulting "retouch" would be morphologically classifiable as use-related attrition. Consequently, these categories are not mutually exclusive and thus, are combined for comparative purposes.

The class of flake tools is employed as a technological group rather than inferring functional implementation. Interpretations of tool function based on macroscopic morphological attributes have been demonstrated through independent microwear analyses to be hazardous, if not completely unreliable (Ahler 1971:108; Grieser 1977:114; Nance 1971:271; Odell 1981:338; Wylie 1975:27; Yerkes 1984). This class of flakes (both retouched and non-retouched, but showing evidence of use) in Mesolithic assemblages sometimes includes members that demonstrate evidence of use as hafted projectiles (Odell 1981:332–333, Figure 2a). Attempts to isolate functionally specific types such as butchering, woodworking, boneworking, or plant-processing tools without the benefit of microwear analyses are highly speculative without further testing.

Endscrapers (ES). Endscrapers are defined as flake tools that have unifacially retouched (usually steeply beveled) distal margins transverse to the long axis (proximo-distal) of the flake. Endscrapers appear to have had standardized shapes at certain points in prehistory in the Southeast, especially during the Paleoindian and Early Archaic periods (Coe 1964; Goodyear 1974).

Sidescrapers (SS). Sidescrapers are defined as flake tools that have unifacially retouched edges that create steeply beveled working edges along the proximo-distal margins. As noted for endscrapers, these flake tools also exhibit potentially standardized (chronologically diagnostic) shapes. The working edge or edges parallel the long axis (proximo-distal) of the tool, and retouching may obscure obvious indications that the tool is made on a flake.

Retouched Flakes (RF). Retouched flakes exhibit one or more edges that have been retouched to create more obtuse edge angles, but which do not fit the descriptions of endscrapers or sidescrapers.

Utilized Flakes (UF). Utilized flakes defined as flake tools exhibit evidence of use-damage or polish on one or more edges.

Notched Flakes (NF). Notched flakes or spokeshaves are specialized flakes distinguished by the purposeful retouching of one or more margins into a concave beveled edge reminiscent of the spokeshave.

Graver Flakes (GF). Gravers are specialized flakes retouched on one or more margins to form acute projections.

Denticulate Flakes (DF). Denticulate flakes are specialized by margin retouching (presumably by pressure flaking) that removes a series of regularly spaced flakes to form a serrate margin.

BIFACES:

Members of this class exhibit two flaked faces originating at a single margin, which serves as the platform for flake removal. This broad morphological type is further subdivided by raw material type, the amount and location of cortex, the amount of flaking as reflected by the symmetry of the margins,

presence of haft elements, and by the identification of diagnostic elements which reflect temporal or stylistic types.

Bifaces are interpreted in this study as technological classes representing production stages in the manufacture of tools. Use of the system of classification that identifies biface attribute clusters as technological production stages has a rich tradition in archaeological lithic analysis (Binford and Papworth 1963; Collins 1974; Holmes 1919; Jelinek 1965; Monet-White 1968; Muto 1971; Sheets 1975). Replication experiments involving flint knapping have been crucial in identifying empirically relevant production stages (Bradley 1975; Collins 1975; Flenniken 1985; Newcomer 1971; Sheets 1975) and still remain the most valuable means for refining classification. Studies implementing the technological classification of bifaces have been employed in the Mid-south with considerable success (Amick 1982:17, 1984; Amick et al. 1986; Futato 1980; Johnson 1981b, 1984, 1985; Raspet 1979), and this classificatory system draws heavily from their research. Metric data describing the morphological attributes of bifaces have not yet been gathered on bifaces from Fort Bragg. Late-stage bifaces are described using traditional morphological attributes (Cambron and Hulse 1964; Futato 1977) and types are identified from relevant sources (Coe 1964; Oliver 1985:195–211).

The application of the reduction stage model is assumed to provide the basis for inferring certain technological patterns, while its taxonomic categories are defined by empirically measurable attributes. These inferred patterns might represent chronological or cultural variability (Flenniken 1985; Johnson 1981b; Pitts and Jacobi 1979), subsistence and settlement activities (Anderson et al. 1982; Goodyear 1974; Raab et al. 1979; Brose 1978), resource availability, environmental or demographic factors, and specific site function (Amick 1982, 1984; Amick et al. 1986; Hall 1985; Herbert 1986; Johnson 1981b, 1982; Shott 1994). Although this system of classification emphasizes biface production as the primary reduction system, it does not inhibit the identification of flake tools and expedient flake tool types which may represent an intermediate or final stage in the production model.

The recognition of biface failures is another means of understanding tool production and use trajectories. Failures due to thermal stress (Crabtree and Butler 1964; Purdy 1971, 1975), percussive shock initiated during production (Collins 1974; Crabtree 1972; Johnson 1979, 1981a, 1981b), and failures resulting from impact (Ahler 1971) and bending stress sustained while in use (Flenniken 1985; Johnson 1979, 1981a, 1981b) have been recognized in Archaic assemblages from the Mid-south (Amick 1982; Amick et al. 1986; Johnson 1979, 1981a, 1981b). Correlation of thermal and percussive failures with specific stages in the production trajectory has also been observed (Amick 1982; Amick et al. 1986; Futato 1980; Johnson 1981b) and provides information about specific production techniques and the response of various raw materials. The effects of use-failure on reworking and the implications for typological classification have also been considered (Flenniken 1985; Hofman 1984).

Early-stage Bifaces (EB). Early-stage bifaces are cobbles, blocks, or large flakes that have had their edges bifacially trimmed in a preliminary manner by the detachment of a few large reduction flakes. Early-stage bifaces are equivalent to Callahan's (1979) Stage-2 bifaces.
Because of the limited number of flake scars on the margins, these bifaces can be confused with freehand-percussion cores and choppers, but are distinguished by the presence of a bifacial margin.

Middle-Stage Bifaces (MB). Middle-stage bifaces, as the name suggests, have been thinned and shaped to a greater degree than early-stage bifaces. Middle-stage bifaces are characterized by hard-hammer bifacial flake removal that has resulted in a lenticular cross section, but margins are irregular and exhibit lateral and dorso-ventral asymmetry, and patches of cortex may still remain on one or both faces. These characteristics, roughly equivalent to Callahan's (1979) Stage-3 bifaces, distinguish the middle stage of biface reduction from the early or late stages.

Late-Stage Bifaces (LB). Late-stage bifaces are well thinned, symmetrical in both lateral and dorso-ventral proportion, and exhibit a mixture of hard-hammer, soft-hammer and possibly pressure flaking on both faces. Late-stage bifaces, analogous to Callahan's (1979) Stage-4 bifaces, are distinguished from projectile points by the absence of haft elements.

Projectile Points (PP). Projectile points are defined as bifaces that exhibit specialized elements for hafting. Unfortunately, the function-laden name "projectile point" suggests use of the tool as a projectile hafted to the point of an atlatl dart or arrow. In fact, many PP bifaces never have functioned in this way, instead serving as hand-held, hafted bifacial tools used in cutting, scraping and similar activities. The specific PP types employed here are derived from sources that are relevant to the Fort Bragg region and are referenced within the text.

Drills (DR). Drills are specialized hafted bifaces characterized by very narrow blade width. Often, drills were made from hafted bifacial knives which were resharpened to an extreme degree, reducing blade width to a minimum.

Adzes (BA). Adzes are specialized bifaces with beveled bits that exhibit polishing on the distal (unhafted) margin. It is presumed that these prehistoric stone tools served in a similar capacity to their historic steel counterparts, hewing wood with the blade perpendicular to the grain.

Other Bifaces (OB). Bifaces that do not fit into the above types are classified as "other bifaces" and the characteristics which prohibit their inclusion in other classes are described briefly in the comments section.

Indeterminate Biface Fragments (IB). Indeterminate biface fragments are sections of bifaces that are too badly damaged to be assigned to a specific type.

FIRE-CRACKED ROCK (FCR).

This category is composed mostly of quartz and quartzite pieces that were thermally altered, but which show no evidence of percussive reduction (House and Smith 1975:76). Evidence of thermal alteration, including color changes as well as structural failures due to thermal expansion, are presumed to have been caused by human factors when FCR are found in subsurface context, although alteration by incidental firing (forest fires) during prehistoric times cannot be ruled out.

COBBLE TOOLS:

Hammerstones (HS). Hammerstones are cobbles that show evidence of battering and crushing along their margins suggesting that they were intentionally used as percussors either for flint knapping, or for pounding or crushing other materials.

Manos (MN). Manos or grinding stones are hand-sized cobbles with one or more flat surfaces showing evidence of abrasion (smoothed and polished surfaces) suggesting use as grinding tools.

RAW MATERIALS:

Quartz (Q). Quartz pebbles and cobbles occur locally in Tertiary terrace formations. Gravel can often be found in erosion features or stream beds. The presence of quartz flakes and tools in prehistoric assemblages on Fort Bragg most likely represents local resource procurement and utilization. Varieties include milky, smoky, and crystal quartz. The most common forms are well rounded pebbles with well developed cortical surfaces.

Quartzite (QTZ). Quartzite also occurs locally, although somewhat unusually, in Tertiary gravel deposits.

Metavolcanic (MV). Metavolcanic rock, or metamorphosed igneous rock, is common in the Piedmont, and is especially common to the Carolina Slate Belt. Lithologically, rhyolite, rhyolitic tuffs and breccias are metavolcanic lithics, but in this report, the term metavolcanic denotes only rhyolitic tuff (no specimens of rhyolitic breccia are represented in these assemblages). Rhyolitic tuff (MV) includes materials of various texture and color including coarse- to fine-grained stone in various shades from green to light gray (Daniel 1994:59–60). It is assumed that the source area for this material was within the Carolina Slate Belt, the boundary of which is 25–30 km northwest of Fort Bragg.

Rhyolite (R). In this report, the term rhyolite refers to aphyric (flow-banded) and porphyritic (including any variety of plagioclase and/or quartz phenocrysts) rhyolite. This material is generally dark gray in color with a homogeneous, fine-grained texture (Daniel 1994:59). The primary source for this material is assumed to be Morrow Mountain or other of the Uwharrie mountains nearby (Daniel and Butler 1996).

Sandstone (SST). Iron-oxide-cemented sandstone occurs in Tertiary terrace deposits and upland sediments and crops out in several locations on Fort Bragg. Its use prehistorically is expected to have been limited (perhaps as abrading tools or in boiled-stone cooking). Certainly it is not a suitable material for flaking.

Feldspathoids (FLD). In the Raleigh Belt, along Middle and Black Creeks in Johnston County and along Neal Creek and the Haw River at Lillington in Harnett County (about 25 km from Fort Bragg), are found phyllite and schist (Brown 1985). These metamorphic rocks include sheared, fine-grained metasedimentary and metavolcanic rock in which minerals called feldspathoids may be present. The most common feldspathoids in the Raleigh Belt, schists are biotite mica and hornblende. Appearing as dark flakes within the rock, biotite minerals have excellent cleavage planes and give a glassy or vitreous luster. Hornblende and other amphiboles may be found as small, dark, prismatic crystals. These minerals have been found in crushed rock used as temper in ceramics (possibly dating to the Early Woodland period) from the Middle Toe site (31CD750) on Fort Bragg.

Siltstone (MSS). Metasiltstone is a very siliceous green rock that resembles chert (Daniel 1994:61). Although this material is closely related to argillite, it is petrologically distinct. Hand samples differ from argillite in their extremely fine crystalline, homogeneous texture, which allows controlled concoidal fracturing.

Greenstone (GST). Greenstone is a major lithologic unit found near Morrow Mountain in the Uwharrie Mountains (Daniel 1994:60). Greenstone is dark green or greenish gray in color, compact and somewhat coarse grained. It does not sustain a concoidal fracture, but was commonly pecked and ground into adzes, hammerstones, anvils and other tools or ornaments. Its presence in assemblages from Fort Bragg may signal Late Archaic trade or extralocal procurement.

POTTERY ARTIFACT CLASSES
ARTIFACT TYPES

STL010 Stallings
011 plain
012 punctate

CRO020 Croaker Landing (grog)
021 plain
022 cord-marked
023 incised

MAR030 Marcey Creek (soapstone)
031 plain

THO200 Thom's Creek (fine sand)
210 reed punctate
211 random
212 linear
220 fingernail punctate
221 random
222 linear
230 pinched
240 plain
250 simple-stamped
260 incised

ALN300 Allendale Punctate (fine sand, reed-bundle punctuated)

DEP400 Deptford (medium or coarse sand)
410 check-stamped
420 linear check-stamped

NEW500 New River/Deep Creek (coarse sand)
510 fabric-impressed
520 cord-marked
530 net-impressed
550 plain

HMP600 Hamp's Landing (limestone/marl)
610 fabric-impressed
620 cord-marked
630 simle-stamped
631 broad land (var. 1)
632 narrow land (var.2)
650 plain

HAN700 Hanover (grog)
710 fabric-impressed
711 coarse weft (var. 1)
712 medium weft (var. 2)
713 fine weft (var. 3)
714 plain-twined textile (var. 4)
715 smoothed or eroded
720 cord-marked
721 parallel (var. 1)
722 parallel (var. 2)
725 smoothed or eroded

HAN700 Hanover (grog) cont.
730 net-impressed
735 smoothed or eroded
750 plain

CAP800 Cape Fear (medium sand)
810 fabric-impressed
811 coarse weft (var. 1)
812 medium weft (var. 2)
813 fine weft (var. 3)
815 smoothed or eroded
820 cord-marked
821 parallel (var. 1)
822 perpendicular (var. 2)
825 smoothed or eroded
830 net-impressed
835 smoothed or eroded
850 plain

MNT900 Mount Pleasant (medium sand and granule)
910 fabric-impressed
911 coarse weft (var. 1)
912 medium weft (var. 2)
913 fine weft (var. 3)
914 plain twined or interwoven with small, flexible warp
915 smoothed or eroded
920 cord-marked
921 parallel (var. 1)
922 perpendicular (var. 2)
930 net-impressed
931 knotted, open weave
932 knotted, closed weave (knot roughened)
935 smoothed or eroded
950 Plain

MOC1000 Mockley (coarse shell)
1010 net-impressed
1020 cord-marked

COL1100 Colington (coarse and medium shell)
1110 fabric-impressed
1111 coarse weft (var. 1)
1112 medium weft (var. 2)
1113 fine weft (var. 3)
1115 smoothed or eroded
1120 simple-stamped
1121 broad land (> 2mm, var. 1)
1122 narrow land (< 2mm, var. 2)
1120 plain

OAK1200 White Oak (medium and fine shell)
1210 fabric-impressed
1212 medium weft (var. 2)

POTTERY ARTIFACT CLASSES
ARTIFACT TYPES

OAK1200 **White Oak** (cont.)
- 1213 fine weft (var. 3)
- 1215 smoothed or eroded
- 1220 plain

CAS1300 **Cashie**
- 1310 fabric-impressed
- 1311 coarse weft (var. 1)
- 1312 medium weft (var. 2)
- 1313 fine weft (var. 3)
- 1315 smoothed or eroded
- 1320 plain
- 1330 simple-stamped
- 1331 broad land (> 2mm, var. 1)
- 1332 narrow land (< 2mm, var. 2)

BRN1400 **Brunswick** (fine sand/temperless)

SWN1500 **Swansboro** (shell)

CHL1600 **Charles Town** (fine sand/temperless)

BAD1700 **Badin** (sand-tempered)
- 1710 fabric-impressed
- 1720 cord-marked

YAD1800 **Yadkin** (crushed quartz)
- 1810 smoothed (plain)
- 1820 cord-marked
- 1830 simple-stamped
- 1840 fabric-impressed
- 1850 check-stamped

TEMPER

NON000 None

QZT100 Quartzose aggregate
110 fine (.5mm)
120 medium (.5 – 1mm)
130 coarse (1 – 2mm)
140 granule (2 – 4mm)
150 Pebble (4 – 64mm)
151 rounded
152 subrounded
153 subangular
154 angular

CLY200 Clay

GRG300 Grog

CAL400 Calcite
410 fine shell (five largest pieces 1mm)
420 medium shell (five largest pieces > 1mm and < 2mm)
430 coarse shell (five largest pieces > 2.0mm)
440 marl/limestone

FIB500 Fiber

OCS600 Other Crushed Stone
610 soapstone
620 feldspar

INTERIOR SURFACE TREATMENT
INT 1 smoothed (wiped with fingers)
2 scraped (scraped with shell or similar edged tool)
3 brushed (brushed with bristled brush)
4 burnished (polished with smooth stone)
5 cord-marked (paddle used as anvil)
6 fabric-impressed (same)
7 floated (repeatedly wiped with wet fingers to develop surface film)
8 cord-wrapped stick

EXTERIOR SURFACE TREATMENT

NON000 None

SMO100 Smoothed or eroded
110 smoothed-over stamped
111 smoothed-over cord-marked
112 smoothed-over fabric-impressed

STM200 Stamped
210 simple-stamped
211 broad land
212 narrow land
220 check-stamped (square)
230 check-stamped (linear)
240 complicated-stamped (rectilinear)
250 complicated-stamped (curvilinear)

NET300 Net-impressed
310 knotted
320 looped
330 twined

CRD400 Cord-Marked
410 parallel
411 S-twist
412 Z-twist
420 perpendicular
421 S-twist
422 Z-twist

CWS500 Cord-wrapped-stick Imprinted

FAB600 Fabric-impressed
610 fine weft (1mm)
620 medium weft (1 < X 2mm)
630 coarse weft (> 2mm)
640 plain-twined textile

BUR800 Burnished

PUN900 Punctuate
910 zone linear (reed or awl)
920 random (stick or reed bundle)
930 other

Appendix B:

Artifact Inventory

Site Number	Accession Number	Unit/ Location	Level/ cmbs	Count	Artifact Group	Artifact Type	Material Type	Surface Type	Portion	Size	Description (wt=grams mm=millimeters cm=centimeters
31CD769	980176a1	general surface	0	1	L	BF	MV		MS/F	2	wt=1.5
31HK631	980155p1	general surface	0	1	HC	semi PO		P	F	5	wt=2.9
31HK631	980155m2a	general surface	0	1	L	RF	Q			3	wt=3.4
31HK631	980155m2b	general surface	0	1	L	CS	Q			3	wt=4
31HK636	980160a1	general surface	0	2	L	PP	MV			4	wt=7.9, Hardaway-Dalton, mends
31HK642	980167m1	general surface	0	3	L	FF	MV			2	wt=1.8
31HK642	980167m2	general surface	0	3	L	LRF	Q			2	wt=0.8
31HK642	980167m3	general surface	0	5	L	LRF	Q			3	wt=6.2
31HK642	980167p4	general surface	0	1	PC	UNK000			R	3	wt=3.4
31HK642	980167p5	general surface	0	5	PC	UNK000			B	1	wt=1.6
31HK642	980167p6	general surface	0	11	PC	UNK000			B	2	wt=21.6
31HK642	980167p7	general surface	0	8	PC	UNK000			B	3	wt=32
31HK642	980167p8	general surface	0	2	PC	UNK000			B	3	wt=6, mends
31HK642	980167p9	general surface	0	13	PC	UNK000			B	2	wt=14.8
31HK642	980167p10	general surface	0	3	PC	UNK000			B	3	wt=8.1
31HK642	980167p11	general surface	0	4	PC	UNK000			B	2	wt=5.4
31HK642	980167p12	general surface	0	6	PC	UNK000			B	1	wt=2.7
31HK642	980167p13	general surface	0	1	PC	UNK000			B	4	wt=2.6
31HK642	980167p14	general surface	0	1	PC	UNK000			B	2	wt=1.3
31HK642	980167p15	T1, STP1	35-40	1	PC	UNK000			R	2	wt=2.1
31HK642	980167m16	random, STP3	40-50	1	L	FF	MV			2	wt=0.3
31HK642	980167p17	general surface	0	1	PC	UNK000			B	3	wt=5.6
31HK642	980167p18	general surface	0	1	PC	UNK000			B	2	wt=2 3
31HK642	980167p19	general surface	0	2	PC	UNK000			B	3	wt=6.8, mends
31HK642	980167p20	general surface	0	4	PC	UNK000			B	2	wt= 6.5
31HK642	980167p21	general surface	0	4	PC	UNK000			B	3	wt= 13.4
31HK642	980167p22	general surface	0	2	PC	UNK000			B	2	wt= 2.8
31HK642	980167p23	general surface	0	3	PC	UNK000			B	2	wt= 3.1
31HK642	980167a24	Locus A	0	1	L	RF	MV		F	3	wt= 4.1
31HK642	980167m25	Locus A	0	1	L	LRF	MV			2	wt= 1.3
31HK642	980167m26	Locus A	0	1	L	LRF	Q			1	wt= .3
31HK642	980167m27	Locus A	0	1	L	FF	MV			2	wt= .7
31HK642	980167m28	Locus A	0	1	L	FF	Q			2	wt= 1.6
31HK642	980167m29	Locus A	0	1	L	CS	Q			5	wt= 1.71
31HK642	980167a30	Locus B	0	1	L	BC	Q			2	wt= 1.8, wedge
31HK642	980167m31	Locus B	0	1	L	PRF	MV			2	wt= 1.3
31HK642	980167m32	Locus B	0	1	L	LRF	MV			2	wt= 1.2
31HK642	980167m33	Locus B	0	1	L	FF	MV			3	wt= .7
31HK642	980167m34	Locus B	0	1	L	LRF	MV			2	wt= .4
31HK642	980167m35	Locus B	0	1	L	LRF	MV			1	wt= .1
31HK642	980167m36	Locus B	0	1	L	LRF	Q			2	wt= .4
31HK642	980167m37	Locus B	0	1	L	CS	Q			2	wt= 1.1
31HK642	980167p38	Locus B	0	1	PC	UNK000			R	3	wt = 4.7
31HK642	980167p39	Locus B	0	1	PC	UNK000			B	2	wt =1.7
31HK642	980167p40	Locus B	0	1	PC	UNK000			B	4	wt =8
31HK642	980167p41	Locus B	0	10	PC	UNK000			B	1	wt =7.2
31HK642	980167p42	Locus B	0	10	PC	UNK000			B	2	wt = 18.7
31HK642	980167p43	Locus B	0	5	PC	UNK000			B	3	wt =24.2
31HK642	980167p44	Locus B	0	16	PC	UNK000			B	1	wt =8.7
31HK642	980167p45	Locus B	0	9	PC	UNK000			B	2	wt =16.1
31HK642	980167p46	Locus B	0	1	PC	UNK000			B	3	wt =6.4
31HK642	980167p47	Locus B	0	6	PC	UNK000			B	2	wt =8.3
31HK642	980167p48	Locus B	0	1	PC	UNK000			B	3	wt =4.6
31HK642	980167m49	Locus B	0	8	L	FCR	QZT				wt =31.5
31HK642	980167m50	Locus C STP 9	40-55	2	L	LRF	Q			1	wt =.1
31HK642	980167m51	Locus C	0	1	L	ERF	MV			5	wt =16.5
31HK642	980167m52	Locus C	0	1	L	LRF	MV			3	wt =.7
31HK642	980167m53	Locus C	0	1	L	ERF	MV			3	wt =2.3

31HK642	980167m54	Locus C	0	1	L	PP	Q		2	wt =.4, triangular, "Caraway"
31HK642	980167m55	Locus C STP 12	60-70	2	L	LRF	MV		3	wt =2,L28 W radial off STP 9
31HK642	980167m56	Locus C vicinity STP 12	0	1	L	LRF	MV		3	wt =1.6
31HK642	980167p58	Locus C	0	1	L	FF	Q		2	wt =.4
31HK643	980168p1	general surface	0	1	PC	UNK000		B	2	wt=1.6
31HK643	980168p2	general surface	0	1	PC	UNK000		B	4	wt=10.4, mends
31HK643	980168p3	general surface	0	1	PC	UNK000		B	3	wt=2
31HK643	980168p4	general surface	0	1	PC	UNK000		B	3	wt=2.7, mends
31HK643	980168m5	general surface	30	1	L	ERF	Q		5	wt=11.2, center of ceramic concentration
31HK643	980168p6	Locus A	0	2	PC	UNK000		B	2	wt= 3.2, TT205 south Boundary Road (north shoulder)
31HK643	980168a7	Locus A	0	1	L	RF	Q	WH	5	wt=2.37
31HK643	980168m8	STP1	0	1	L	FCR	QZT		5	wt=51.7, vicinity: STP1
31HK643	980168p9	STP1	0	1	PC	UNK000		B	2	wt=1.3
31HK643	980168a10	Locus C	0	2	L	FC	Q		7	wt=380.7
31HK643	980168a11	Locus B	0	1	L	HS/M	QZT	WH	6	wt=191.4, mano/polisher/hammerstone
31HK643	980168a12	Locus B	0	1	L	HS/M	QZT	WH	7	wt=262.8, mano/polisher/hammerstone
31HK643	980168p13	Locus B	0	1	PC	UNK000			3	wt=3.2, mends
31HK644	980169m1	general surface	0	1	L	CS	Q		3	wt=8.1
31HK644	980169m2	general surface	0	1	L	FF	Q		2	wt=.7
31HK644	980169m3	general surface	0	4	L	LRF	Q		2	wt=1.6
31HK644	980169m4	general surface	0	1	L	FCR	QZT		3	wt=14.7
31HK644	980169m5	general surface	0	1	L	LRF	Q		2	wt=.6
31HK644	980169m6	general surface	0	2	L	CS	Q		3	wt=1.23
31HK644	980169a7	general surface	0	1	L	IB	Q	F	4	wt=5.8, biface fragment
31HK644	980169m8	general surface	0	1	L	FF	Q		2	wt=.4
31HK646	980171a1	general surface	0	1	L	LB	MV		4	wt=8.8, south side of Firebreak #22
31HK646	980171m2	general surface	0	1	L	CS	Q		3	wt=2.6, south side of Firebreak #22
31HK646	980171m3	general surface	0	1	L	LRF	Q		2	wt=.3, south side of Firebreak #22
31HK646	980171m4	general surface	0	1	L	FF	Q		1	wt=.1, south side of Firebreak #22
31HK646	980171m5	general surface	0	1	L	FCR	Q		8	wt=126.2, from CP Bunker backfill/spoil
31HK646	980171m6	general surface	0	0					.	modern concrete sample, discarded in lab
31HK646	980171m7	general surface	0	1	L	PRF	Q		.	wt=.
31HK646	980171m8	general surface	0	2	L	FF	MV		.	wt=.
31HK649	980181m1	general surface	0	3	L	CS	Q		3	wt=40.4
31HK649	980181m2	general surface	0	1	L	CS	Q		3	wt=2
31HK649	980181m3	general surface	0	1	L	PRF	Q		2	wt=1.5
31HK649	980181m4	general surface	0	7	L	LRF	Q		2	wt=3.4
31HK649	980181m5	general surface	0	6	L	LRF	Q		1	wt=1
31HK649	980181m6	general surface	0	4	L	FF	Q		2	wt=3
31HK649	980181m7	general surface	0	6	L	FF	Q		1	wt=1.3
31HK649	980181a8	general surface	0	1	L	PP	Q		3	wt=2.5, Yadkin
31HK649	980181m9	general surface	0	1	L	CS	Q		7	wt=114.9
31HK649	980181m10	general surface	0	1	L	LRF	MV		2	wt=1.6
31HK649	980181p11	general surface	0	5	PC	UNK000			3	wt=11
31HK649	980181p12	general surface	0	18	PC	UNK000			2	wt=16
31HK649	980181p13	general surface	0	22	PC	UNK000			1	wt=6.6
31HK649	980181p14	road surface	0	6	PC	UNK000			4	wt=31.7, mends
31HK649	980181p15	road surface	0	10	PC	UNK000			3	wt=22.8
31HK649	980181p16	road surface	0	39	PC	UNK000			2	wt=37.4
31HK649	980181p17	road surface	0	23	PC	UNK000			1	wt=10.3
31HK649	980181m18	road surface	0	12	L	LRF	Q		2	wt=6.2
31HK649	980181m19	road surface	0	8	L	LRF	Q		1	wt=1.5
31HK649	980181m20	road surface	0	1	L	PRF	Q		2	wt=0.5
31HK649	980181m21	road surface	0	2	L	FF	Q		3	wt=2.8
31HK649	980181m22	road surface	0	10	L	FF	Q		2	wt=4.8
31HK649	980181m23	road surface	0	4	L	FF	Q		1	wt=0.6
31HK649	980181m24	road surface	0	3	L	ERF	Q		3	wt=7.5
31HK649	980181m25	road surface	0	4	L	ERF	Q		2	wt=4.4
31HK649	980181m26	road surface	0	4	L	CS	Q		3	wt=14

31HK649	980181m27	road surface	0	10	L	CS	Q			2	wt=9.9
31HK649	980181m28	road surface	0	4	L	CS	Q			1	wt=1.1
31HK649	980181m29	road surface	0	1	L	LRF	MV			2	wt=0.8
31HK649	980181m30	road surface	0	1	L	FF	MV			1	wt=0.1
31HK649	980181m31	road surface	0	1	L	FCR	QZT			8	wt=199.9
31HK649	980181p32	Area B, 20m @ STP0	0	1	PC	UNK000				2	wt=1.1
31HK649	980181m33	STP E3 (radial)	0	1	L	LRF	CQ			1	wt=0.1, surface find
31HK649	980181m34	STP N1 (radial)	0	1	L	CS	Q			2	wt=0.6, surface find
31HK665	980266m1	general surface	0	1	L	FF	MV			3	wt=3.7
31HK666	980267m1	general surface	0	2	L	FF	MV			3	wt=.9
31HK666	980267m2	general surface	0	1	L	ERF	MV			3	wt=2.4
31HK667	980268m1	general surface	0	1	L	FF	Q			2	wt=3.1
31HK667	980268m2	general surface	0	1	L	CS	Q			3	wt=13.6, corticated
31HK668	980269m1	general surface	0	1	L	TC	Q			6	wt=132.1
31HK668	980269m2	general surface	0	1	L	UMR	Q			6	wt=119.1
31HK668	980269m3	general surface	0	4	L	CS	Q			6	wt=258.5
31HK668	980269m4	general surface	0	4	L	CS	Q			5	wt=124.1
31HK668	980269m5	general surface	0	8	L	CS	Q			4	wt=135.7
31HK668	980269m6	general surface	0	9	L	CS	Q			3	wt= 44.7
31HK668	980269m7	general surface	0	23	L	CS	Q			2	wt=30.3
31HK668	980269m8	general surface	0	10	L	CS	Q			1	wt=3
31HK668	980269m9	general surface	0	2	L	FF	Q			3	wt=2.5
31HK668	980269m10	general surface	0	6	L	FF	Q			2	wt=3.1
31HK668	980269m11	general surface	0	7	L	FF	Q			1	wt=1
31HK668	980269m12	general surface	0	3	L	ERF	Q			3	wt=12.9
31HK668	980269m13	general surface	0	1	L	ERF	Q			2	wt=1
31HK668	980269m14	general surface	0	3	L	LRF	Q			2	wt=1
31HK669	980270m1	general surface	0	1	OH	brick					wt=
31HK669	980270p2	general surface	0	1	HC	whiteware		transfer print			wt=
31HK671	980272a1	general surface	0	1	L	PP	MV			3	wt=3.3, Morrow Mountain
31HK671	980272m2	general surface	0	1	L	LRF	MV			4	wt=5.6
31HK671	980272m3	general surface	0	3	L	LRF	MV			2	wt=1.4
31HK671	980272m4	general surface	0	1	L	LRF	Q			1	wt=2
31HK671	980272m5	general surface	0	1	L	FF	Q			2	wt=.5
31HK684	980377m1	general surface	0	1	L	LRF	MV			4	wt=7.1
31HK686	980379a1	general surface	0	1	L	PP	MV				wt=.9, Pee Dee/Caraway
31HK687	980380a1	Locus 1	0	1	L	RF	MV		F	3	wt=1.9
31HK687	980380m2	Locus 1	0	1	L	LRF	MV			2	wt=1.1
31HK687	980380m3	Locus 1	0	1	L	FCR	QZT			5	wt=41.2
31HK687	980380m4	Locus 1	0	2	L	CS	Q			3	wt=8.9
31HK687	980380m5	Locus 1	0	4	L	CS	Q			4	wt=93
31HK687	980380m6	Locus 1	0	1	L	PRF	Q			3	wt=6.8
31HK687	980380m7	Locus 1	0	2	L	FF	Q			2	wt=3.2
31HK687	980380m8	Locus 1	0	2	L	ERF	Q			4	wt=12
31HK687	980380m9	Locus 1	0	3	L	ERF	Q			2	wt=7
31HK687	980380m10	Locus 1	0	2	L	LRF	Q			2	wt=1.4
31HK687	980380a11	Locus 2	0	1	L	PP	MV			3	wt=2.1, Palmer/Kirk c-n, flow-banded, retouch flake preform
31HK687	980380m12	Locus 2	0	3	L	FF	MV			2	wt=1.9
31HK687	980380m13	Locus 2	0	1	L	ERF	MV			6	wt=18.7
31HK687	980380m14	Locus 2	0	1	L	LRF	MV			5	wt=6.5
31HK687	980380m15	Locus 2	0	2	L	ERF	Q			3	wt=9.7
31HK687	980380m16	Locus 2	0	2	L	FF	Q			2	wt=1.5
31HK687	980380m17	Locus 2	0	1	L	FCR	QZT			4	wt=21.2
31HK687	980380a18	Locus 2	0	1	L	LB	Q		F	3	wt=3.8 , biface fragment

31HK687	980380a19	Locus 3	0	1	L	FC	Q		WH	4	wt=16.5
31HK687	980380m20	Locus 3	0	7	L	ERF	Q			3	wt=23
31HK687	980380m21	Locus 3	0	1	L	ERF	Q			4	wt=12.6
31HK687	980380m22	Locus 3	0	5	L	CS	Q			3	wt=15.5
31HK687	980380m23	Locus 3	0	7	L	FF	Q			2	wt=4.2
31HK687	980380m24	Locus 3	0	3	L	LRF	Q			1	wt=wt=0.4
31HK687	980380m25	Locus 3	0	1	L	LRF	Q			2	wt=0.4
31HK687	980380m26	Locus 3	0	1	L	FCR	QZT			6	wt=82.6
31HK689	980382m1	general surface	0	2	L	LRF	MV			2	wt=.7
31HK689	980382m2	general surface	0	4	L	LRF	MV			3	wt=7.9
31HK690	980383a1	general surface	0	1	G	insulator			WH	n/a	"made in USA", "70", "Hemingray-0", "0-4"
31HK690	980383a2	general surface	0	2	G	bottle			BS	n/a	pale green, mends, "Fayetteville NC"
31HK690	980383a3	general surface	0	1	L	LRF	MV				
31HK691	980384m1	general surface	0	1	L	PRF	Q			4	wt=13.1
31HK691	980384m2	general surface	0	1	L	PRF	Q			3	wt=2.8
31HK691	980384m3	general surface	0	1	L	ERF	Q			3	wt=2
31HK691	980384m4	general surface	0	2	L	LRF	MV			3	wt=3.2
31HK691	980384m5	general surface	0	1	L	LRF	Q			3	wt=2.3
31HK691	980384m6	general surface	0	4	L	LRF	Q			2	wt=1.2
31HK691	980384m7	general surface	0	2	L	FF	MV			3	wt=4.9
31HK691	980384m8	general surface	0	4	L	FF	Q			2	wt=3.5
31HK691	980348m9	general surface	0	1	L	FC	Q			6	wt=61.8, retouched/reworked core scraper/chopper
31HK693	980386a1	general surface	0	1	L	IB	Q	F		2	wt=2.3
31HK693	980386m2	general surface	0	1	L	LRF	Q			2	wt=1
31HK693	980386m3	general surface	0	1	L	FF	Q			3	wt=2.2
31HK693	980386m4	general surface	0	3	L	FF	Q			2	wt=2.5
31HK693	980386m5	general surface	0	1	L	FF	Q			1	wt=0.2
31HK693	980386m6	general surface	0	1	L	CS	Q			4	wt=10.3
31HK693	980386m7	general surface	0	1	L	LRF	MV			3	wt=1.4
31HK693	980386a8	Firebreak 11	0	1	L	PP	MV	BS		5	wt=11.7, Kirk c-n, wd=27.6mm, th=8.2mm
31HK693	980386a9	Firebreak 11	0	1	L	PP	MV	WH		5	wt=7.6, Kirk c-n, l=44.5mm, w=2.2, th=8.6mm
31HK693	980386a10	Firebreak 11	0	1	L	RF	Q	F		2	wt=2.1, bifacial retouch
31HK693	980386m11	Firebreak 11	0	1	L	CS	Q			6	wt=77.4
31HK693	980386m12	Firebreak 11	0	1	L	CS	Q			5	wt=21.1
31HK693	980386m13	Firebreak 11	0	1	L	CS	Q			4	wt=9.5
31HK693	980386m14	Firebreak 11	0	3	L	CS	Q			3	wt=22.9
31HK693	980386m15	Firebreak 11	0	4	L	CS	Q			2	wt=8.8
31HK693	980386m16	Firebreak 11	0	1	L	FF	Q			3	wt=0.9
31HK693	980386m17	Firebreak 11	0	10	L	FF	Q			2	wt=4.5
31HK693	980386m18	Firebreak 11	0	5	L	FF	Q			1	wt=0.9
31HK693	980386m19	Firebreak 11	0	4	L	ERF	Q			2	wt=7.6
31HK693	980386m20	Firebreak 11	0	9	L	LRF	Q			2	wt=4.8
31HK693	980386m21	Firebreak 11	0	10	L	LRF	Q			1	wt=2
31HK693	980386m22	Firebreak 11	0	3	L	LRF	MV			2	wt=1.4
31HK694	980387m1	general surface	0	1	L	ERF	Q			2	wt=2
31HK694	980387m2	general surface	0	1	L	LRF	Q			2	wt=1.2
31HK694	980387m3	general surface	0	1	L	FF	Q			1	wt=0.1
31HK695	980388a1	general surface	0	1	M	tin can	steel/tin?				rim
31HK695	980388a2	general surface	0	1	OH	button	PO				porcelain Prosser button
31HK695	980388a3	general surface	0	3	HC	SW		AS	B		
31HK695	980388a4	general surface	0	1	HC	PO		P	R		
31HK695	980388a5	general surface	0	1	HC	IS		P	BS		
31HK695	980388a6	general surface	0	2	HC	WW		P	BS		
31HK695	980388a7	general surface	0	11	HC	WW		P	B		
31HK695	980388a8	general surface	0	1	HC	WW		P	R		
31HK695	980388a9	general surface	0	1	G	GR BOT			BS		
31HK695	980388a10	general surface	0	1	G	GR BOT			B		

31HK695	980388a11	general surface	0	1	G	GR C			B		
31HK695	980388a12	general surface	0	1	G	BR BOT			B		
31HK695	980388a13	general surface	0	9	G	AQ BOT			B		
31HK695	980388a14	general surface	0	1	G	SO BOT			BS		
31HK695	980388a15	general surface	0	4	G	SO C			B		
31HK695	980388a16	general surface	0	1	G	SO C			R		
31HK695	980388a17	general surface	0	1	G	SO C			B		molded floral pattern
31HK695	980388a18	general surface	0	1	G	CL C			BS		
31HK695	980388m19	general surface	0	1	L	CS	Q			4	wt=10
31HK695	980388m20	general surface*	0	32	OH	brick					wt= 302, *sand rd parallel to Inverness between T-2STP1 and T4STP1
31HK695	980388m21	general surface*	0	3	OH	mortar			F		wt=37.5, *sand rd parallel to Inverness between T-2STP1 and T4STP1
31HK695	980388a22	general surface*	0	7	OH	battery cells farm					*sand rd parallel to Inverness between T-2STP1 and T4STP1
31HK695	980388a23	general surface*	0	1	M	equipment	iron		F		*sand rd parallel to Inverness between T-2STP1 and T4STP1
31HK695	980388a24	general surface*	0	1	M	bolt	iron				*sand rd parallel to Inverness between T-2STP1 and T4STP1
31HK695	980388a25	general surface*	0	2	M	WN	iron		WH		*sand rd parallel to Inverness between T-2STP1 and T4STP1
31HK695	980388m26	general surface*	0	1	OH	coal			F		*sand rd parallel to Inverness between T-2STP1 and T4STP1
31HK695	980388p27	general surface*	0	2	HC	RB			B		*sand rd parallel to Inverness between T-2STP1 and T4STP1
31HK695	980388a28	general surface*	0	2	G	BR F			F		*sand rd paallel to Inverness between T-2STP1 and T4STP1
31HK695	980388a29	general surface*	0	1	G	CL BOT			B		*sand rd parallel to Inverness between T-2STP1 and T4STP1
31HK695	980388a30	general surface**	0	1	G	AQ BOT			BS		**From Inverness & FB 31 East
31HK695	980388a31	general surface**	0	2	G	AQ BOT			B		1 is a panel bottle **From Inverness & FB 31 East
31HK695	980388a32	general surface**	0	1	G	AQ BOT			R		**From Inverness & FB 31 East
31HK695	980388a33	general surface**	0	1	G	SO BOT			BS		**From Inverness & FB 31 East
31HK695	980388a34	general surface**	0	6	G	SO C			F		**From Inverness & FB 31 East
31HK695	980388a35	general surface**	0	2	G	CL F			F		**From Inverness & FB 31 East
31HK695	980388a36	general surface**	0	1	G	CL C			F		**From Inverness & FB 31 East
31HK695	980388a37	general surface**	0	1	G	W MO			R		milk glass, white molded **From Inverness & FB 31 East
31HK695	980388p38	general surface**	0	1	HC	IS		P	BS		**From Inverness & FB 31 East
31HK695	980388p39	general surface**	0	2	HC	IS		P	B		**From Inverness & FB 31 East
31HK695	980388p40	general surface**	0	2	HC	IS		P	R		**From Inverness & FB 31 East
31HK695	980388p41	general surface**	0	1	HC	RB		P	BS		**From Inverness & FB 31 East
31HK695	980388p42	general surface**	0	1	HC	SW		BAS	B		**From Inverness & FB 31 East
31HK695	980388p43	general surface**	0	4	HC	SW		AS	B		**From Inverness & FB 31 East
31HK695	980388p44	general surface**	0	1	HC	WW		P	R		**From Inverness & FB 31 East
31HK695	980388p45	general surface**	0	5	HC	WW		P	B		**From Inverness & FB 31 East
31HK695	980388p46	general surface**	0	1	HC	WW		P	BS		"China" written in green **From Inverness & FB 31 East
31HK695	980388a47	general surface**	0	1	M	CN	iron		F		**From Inverness & FB 31 East
31HK695	980388a48	general surface**	0	2	M	RN	iron		F		(round nail) **From Inverness & FB 31 East
31HK695	980388a49	general surface**	0	2	M	fence staples	iron				**From Inverness & FB 31 East
31HK695	980388a50	general surface**	0	1	M	UD	copper				**From Inverness & FB 31 East
31HK695	980388m51	T3	STP2	1	OH	mortar			F		wt=21.3
31HK695	980388p52	T3B	STP2	1	HC	WW		MR	R		
31HK695	980388m53	T4	STP4	2	OH	brick					glazed
31HK695	980388p54	T4/T5 area***	0	1	HC	SW		BAS	B		***surface of sand road between T5STP2 and T5STP5
31HK695	980388a55	T4/T5 area***	0	1	G	BR BOT			B		***surface of sand road between T5STP2 and T5STP5
31HK695	980388a56	T4/T5 area***	0	2	G	CL BOT			B		***surface of sand road between T5STP2 and T5STP5
31HK695	980388a57	T4/T5 area***	0	3	G	SO BOT			B		***surface of sand road between T5STP2 and T5STP5
31HK695	980388p58	T4/T5 area***	0	1	HC	PO		MB	F		doll or figurine, ***surface of sand road between T5STP2 and T5STP5
31HK695	980388p59	T4/T5 area***	0	1	HC	IS		P	R		***surface of sand road between T5STP2 and T5STP5
31HK695	980388p60	T4/T5 area***	0	1	HC	IS		P	BS		***surface of sand road between T5STP2 and T5STP5
31HK695	980388a61	T4/T5 area***	0	1	M	UD	iron				***surface of sand road between T5STP2 and T5STP5
31HK695	980388m62	general surface****	0	4	OH	brick					wt=109.7, 2 glazed, ****surface S edge of trail between T5 STP2 and T5, STP4
31HK695	980388p63	T4B	0	1	HC	IS		P	R		10 m from west side of Inverness Road
31HK695	980388p64	T5	STP2	1	HC	WW		P	BS		
31HK695	980388p65	T5	STP2	1	HC	WW		P MR	R		
31HK695	980388a66	T5	STP3	1	G	WH C			F		translucent
31HK695	980388p67	T5	0	1	HC	IS		P	R		10 m west of Inverness Road
31HK695	980388m68	T6	0	2	OH	brick			F		wt=82.7, 2 m west of Inverness Road
31HK695	980388a69	T6	0	1	G	CL C					2 m west of Inverness Road

31HK695	980388a70	T6	0	1	M	shotgun shell	brass					2 m west of Inverness Road
31HK695	980388a71	general surface*****	0	1	M	CN	iron			WH	4.15	wt=2, *****a71-to-a152 suffix numbers=revisit
31HK695	980388a72	general surface	0	1	M	WA	iron			WH	3.7	wt=15.7
31HK695	980388a73	general surface	0	1	M	WI	iron			F	17.6	wt=15.8
31HK695	980388a74	general surface	0	1	M	mule shoe	iron			F	6.5	wt=33.4
31HK695	980388a75	general surface	0	1	G	SOBOT				NK	5	wt=24.3
31HK695	980388a76	general surface	0	1	G	SOBOT				B	3.5	wt=7.1
31HK695	980388a77	general surface	0	1	G	SOBOT				F	2.2	wt=1.5
31HK695	980388a78	general surface	0	1	G	SOBOT				F	2	wt=0.9
31HK695	980388a79	general surface	0	1	G	GRBOT				BS	2.7	wt=8.3
31HK695	980388a80	general surface	0	1	G	BRBOT				B	4.1	wt=4.4
31HK695	980388a81	general surface	0	1	G	GRBOT				B	3.4	wt=7.3
31HK695	980388a82	general surface	0	1	G	CLBOT				L	2.6	wt=4.2
31HK695	980388a83	general surface	0	1	G	CLBOT				F	3.1	wt=4.8
31HK695	980388a84	general surface	0	1	G	SOBOT				B	2.6	wt=2.4
31HK695	980388a85	general surface	0	1	G	SOBOT				R	2.5	wt=2.6
31HK695	980388a86	general surface	0	1	G	SOBOT				F	1.4	wt=0.5
31HK695	980388a87	general surface	0	1	G	SOBOT				B	3.3	wt=3.2
31HK695	980388a88	general surface	0	1	G	AQBOT				B	3.7	wt=12.2
31HK695	980388a89	general surface	0	1	G	AQBOT				BS	3.5	wt=1.5
31HK695	980388a90	general surface	0	1	G	CLM				F	6	wt=9.8
31HK695	980388a91	general surface	0	1	G	WMB				BS	5.6	wt=13.1
31HK695	980388a92	general surface	0	1	G	WMB				F	3	wt=1.5
31HK695	980388a93	general surface	0	1	G	WMB				F	2	wt=1.9
31HK695	980388p94	general surface	0	1	HC	SW		BAS		NK	7	wt=37.3
31HK695	980388p95	general surface	0	1	HC	SW		AS		B	4	wt=11
31HK695	980388p96	general surface	0	1	HC	SW		BS		B	4	wt=9.2
31HK695	980388p97	general surface	0	2	HC	SW		BS		B	5	wt=39.6
31HK695	980388p98	general surface	0	1	HC	SW		BS		B	7	wt=47.6
31HK695	980388p99	general surface	0	4	HC	WW		P		B	4	wt=22.9
31HK695	980388p100	general surface	0	1	HC	WW		P		B	4	wt=5.8
31HK695	980388p101	general surface	0	3	HC	WW		P		B	2	wt=8
31HK695	980388p102	general surface	0	1	HC	WW		P		B	2	wt=2.5
31HK695	980388p103	general surface	0	1	HC	WW		P		B	4	wt=5.9
31HK695	980388p104	general surface	0	1	HC	IS		P		R	3	wt=1.3
31HK695	980388p105	general surface	0	1	HC	IS		P		R	3	wt=3.8
31HK695	980388p106	general surface	0	1	HC	WW		P		R	5	wt=4.6
31HK695	980388p107	general surface	0	1	HC	WW		AN		R	3	wt=5.4
31HK695	980388p108	general surface	0	1	HC	WW		P		R	4	wt=6.3
31HK695	980388p109	general surface	0	3	HC	WW		P		R	3.5	wt=9.6
31HK695	980388p110	general surface	0	4	HC	WW		P		R	3	wt=9.7
31HK695	980388p111	general surface	0	3	HC	WW		P		R	2.5	wt=5.6
31HK695	980388p112	general surface	0	2	HC	WW		P		R	2	wt=2
31HK695	980388p113	general surface	0	4	HC	WW		P		R	1.5	wt=5.2
31HK695	980388p114	general surface	0	3	HC	WW		P		R	1	wt=1.3
31HK695	980388p115	general surface	0	1	HC	PO		TP		B	6	wt=16.3
31HK695	980388p116	general surface	0	1	HC	PO		DE		R	4	wt=3.6
31HK695	980388p117	general surface	0	1	HC	PO		TP		R	2.5	wt=1.9
31HK695	980388p118	general surface	0	1	HC	PO		TP		R	4	wt=4.6
31HK695	980388p119	general surface	0	1	HC	PO		P		B	2	wt=1.1
31HK695	980388p120	general surface	0	1	HC	PO		P		B	2.5	wt=1.8
31HK695	980388p121	general surface	0	1	HC	PO		MB		R	2	wt=0.6
31HK695	980388p122	general surface	0	1	HC	PO		MB		B	2	wt=0.7
31HK695	980388p123	general surface	0	1	HC	PO		TP		B	2	wt=0.6
31HK695	980388p124	general surface	0	1	HC	PO		P		H	4	wt=2.1
31HK695	980388p125	general surface	0	1	HC	YW		P		H	3	wt=3.8
31HK695	980388p126	general surface	0	1	HC	YW		P		F	2	wt=0.2
31HK695	980388p127	general surface	0	2	HC	WW		P		B	4	wt=10
31HK695	980388p128	general surface	0	4	HC	WW		P		B	3	wt=14.5
31HK695	980388p129	general surface	0	5	HC	WW		P		B	2.5	wt=7.8
31HK695	980388p130	general surface	0	4	HC	WW		P		B	2	wt=3.1
31HK695	980388p131	general surface	0	4	HC	WW		P		B	1	wt=1.2
31HK695	980388p132	general surface	0	1	HC	WW		MB		B	3	wt=3.6

31HK695	980388p133	general surface	0	1	HC	WW		MB	B	3	wt=2.2
31HK695	980388p134	general surface	0	1	HC	WW		MB	B	3	wt=2.1
31HK695	980388p135	general surface	0	1	HC	WW		P	B	2	wt=0.9
31HK695	980388p136	general surface	0	1	HC	WW		P	B	4	wt=5
31HK695	980388p137	general surface	0	1	HC	PO		MB	B	2.5	wt=1.3
31HK695	980388a138	general surface	0	1	OH	button	PO	prosser	WH	1	wt=0.4
31HK695	980388a139	general surface	0	1	OH	bullet	lead		WH	2	wt=5
31HK695	980388a140	general surface	0	1	OH	brick		layer paste swirl	>1/2	12	wt=1176.8
31HK695	980388a141	general surface	0	1	OH	brick		paste swirl	>1/2	17	wt=>1200
31HK695	980388a142	general surface	0	1	OH	brick		paste	>1/2	14	wt=1080.2
31HK695	980388a143	general surface	0	1	OH	brick			>1/2	14	wt=>1200
31HK695	980388a144	general surface	0	1	OH	brick			>1/2	14	wt=>1200
31HK695	980388a145	general surface	0	2	OH	brick			>1/2	6	wt=784
31HK695	980388a146	general surface	0	2	OH	brick			< 1/2	5	wt=248.2
31HK695	980388a147	general surface	0	1	OH	mortar				9	wt=157.2
31HK695	980388a148	general surface	0	1	OH	mortar				4	wt=15.2
31HK695	980388a149	general surface	0	1	OH	cracked rock	SST			17	wt=>1200
31HK695	980388a150	general surface	0	1	OH	cracked rock	SST			7	wt=148.2
31HK695	980388a151	general surface	0	1	OH	cracked rock	SST			8	wt=525.8
31HK695	980388a152	general surface	0	1	M	plow blade	iron			16	wt=L3641046.9
31HK861	980793m1	general surface	0	2	L	FF	MV			4	wt=11.8
31HK861	980793m2	general surface	0	2	L	FF	Q			3	wt=2.4
31HK861	980793m3	general surface	0	1	L	ERF	Q			3	wt=4.2
31HK861	980793m4	general surface	0	2	L	LRF	Q			2	wt=2.5
31HK861	980793m5	general surface	0	1	L	LRF	Q			3	wt=2.2
31HK863	980795a1	general surface	0	3	HC	CR		MB	R		wt=60.4, includes one body sherd
31HK863	980795a2	general surface	0	1	L	PP	MV		MS	3	wt=8.8, probable point fragment, wd = 29 mm, th = 7.5 mm
31HK863	980795m3	general surface	0	1	L	PRF	MV			3	wt=4.1
31HK863	980795m4	general surface	0	1	L	PRF	MV			5	wt=15.2
31HK863	980795m5	general surface	0	1	L	ERF	MV			7	wt=23.1
31HK863	980795m6	general surface	0	1	L	ERF	MV			5	wt=17.7
31HK863	980795m7	general surface	0	1	L	ERF	MV			3	wt=2.3
31HK863	980795m8	general surface	0	1	L	FF	MV			4	wt=5.1
31HK863	980795m9	general surface	0	1	L	FF	MV			2	wt=0.5
31HK863	980795m10	general surface	0	8	L	ERF	Q			3	wt=27.2
31HK863	980795m11	general surface	0	4	L	LRF	Q			3	wt=9.1
31HK863	980795m12	general surface	0	13	L	LRF	Q			2	wt=7
31HK863	980795m13	general surface	0	14	L	FF	Q			2	wt=8.1
31HK863	980795a14	general surface	0	1	L	LB	MV		DS	4	wt=2.9, probable point fragment
31HK863	980795a15	general surface	0	1	L	RF	MV		F	4	wt=3.8, scraper
31HK863	980795a16	general surface	0	1	L	HS	QZT		F	5	wt=58.2; grinding/polishing stone fragment
31HK863	980795a17	general surface	0	1	L	FC	Q		F	4	wt=23.7
31HK863	980795a18	general surface	0	1	L	PP	Q		PX/MS	3	wt=5.1, Hardaway s-n, portions of tip and base missing
31HK863	980795a19	general surface	0	1	L	LB	Q		PX	2	wt=1.7, probable stem/base
31HK863	980795m20	general surface	0	6	L	FF	Q			2	wt=9.8
31HK863	980795m21	general surface	0	2	L	CS	Q			3	wt=24.2
31HK863	980795m22	general surface	0	3	L	CS	Q			2	wt=4.2
31HK863	980795m23	general surface	0	1	L	ERF	Q			2	wt=0.6
31HK863	980795m24	general surface	0	2	L	ERF	Q			4	wt=12.2
31HK863	980795m25	general surface	0	1	L	ERF	Q			5	wt=18.5
31HK863	980795m26	general surface	0	2	L	LRF	Q			4	wt=8
31HK863	980795m27	general surface	0	1	L	LRF	MV			2	wt=0.6
31HK863	980795m28	general surface	0	1	L	FF	MV			2	wt=0.2
31HK863	980795m29	STP 4, East Radial	0	1	G	CLC				1	wt=0.2, 65-75 cmbs, modern military debris
31HK863	980795m30	STP 4, East Radial	0	3	L	LRF	MV			1	wt=0.3, 56-65 cmbs
31HK864	980796p1	general surface	0	8	HC	CR		MB	F		Herty cup (post-1903)
31HK864	980796p2	general surface	0	2	HC	IS		P	BS		
31HK864	980796p3	general surface	0	7	HC	IS		P	B		

31HK864	980796p4	general surface	0	2	HC	IS		P	R		
31HK864	980796p5	general surface	0	5	HC	IS		MB	R		dot patterned
31HK864	980796p6	general surface	0	1	HC	IS		G TP	B		
31HK864	980796p7	general surface	0	3	HC	PO		P	B		
31HK864	980796p8	general surface	0	2	HC	SW		AS/SG	BS		AS interior, SG exterior
31HK864	980796p9	general surface	0	5	HC	SW		AS/SG	B		AS interior, SG exterior
31HK864	980796a10	general surface	0	20	G	AQ F			F		
31HK864	980796a11	general surface	0	2	G	AQ C					1 has letters "Cha,,,"
31HK864	980796a12	general surface	0	1	G	SO BOT			BS		
31HK864	980796a13	general surface	0	10	G	SO BOT			B		1 has letters "ANT"
31HK864	980796a14	general surface	0	1	G	SO BOT			R		
31HK864	980796a15	general surface	0	1	G	WH C			F		
31HK864	980796a16	general surface	0	22	G	CL BOT			B		
31HK864	980796a17	general surface	0	1	G	CL BOT			BS		
31HK864	980796a18	general surface	0	1	G	CL C		MB			
31HK864	980796m19	general surface	0	1	OH	brick			F		wt=1
31HK864	980796a20	general surface	0	1	M	CN					
31HK864	980796m21	general surface	0	1	L	FF	Q			2	
31HK864	980796m22	general surface	0	1	L	LRF	MV			2	
31HK864	980796a23	general surface	0	1	OH	whetstone(?)	UD			4	wt=20.6, ovoid shaped, saw-marks one end
31HK864	990796m24	general surface	0	1	L	MN	QZT			6	68.1, polisher/abrader
31HK864	990796a25	general surface	0	1	L	ES	MV			2	2.7
31HK864	990796m26	general surface	0	1	L	PRF	MV			3	3.3
31HK864	990796m27	general surface	0	3	L	ERF	MV			4	21.3
31HK864	990796m28	general surface	0	5	L	LRF	MV			3	13
31HK864	990796m29	general surface	0	2	L	LRF	MV			2	1.2
31HK864	990796m30	general surface	0	2	L	LRF	MV			1	0.3
31HK864	990796m31	general surface	0	1	L	FF	MV			3	1.5
31HK864	990796m32	general surface	0	3	L	FF	MV			2	1.5
31HK864	990796a33	general surface	0	1	L	RF	Q		F	3	4.9
31HK864	990796a34	general surface	0	1	L	RF	Q		F	3	3.3
31HK864	990796m35	general surface	0	1	L	PRF	Q			4	10.5
31HK864	990796m36	general surface	0	2	L	LRF	Q			3	3.8
31HK864	990796m37	general surface	0	1	L	LRF	Q			2	0.7
31HK864	990796m38	general surface	0	4	L	LRF	Q			1	1.3
31HK864	990796m39	general surface	0	3	L	FF	Q			3	5.2
31HK864	990796m40	general surface	0	9	L	FF	Q			2	7
31HK864	990796m41	general surface	0	3	L	FF	Q			1	0.4
31HK864	990796m42	general surface	0	3	L	ERF	Q			3	13.3
31HK864	990796m43	general surface	0	1	L	CS	Q			4	27.7
31HK864	990796m44	general surface	0	1	L	CS	Q			2	5.8
31HK864	990796m45	general surface	0	1	L	CS	Q			1	0.4
31HK864	990796p46	general surface	0	1	HC	RR		MB	B	4	9.8
31HK864	990796p47	general surface	0	1	HC	SW		AS	B	5	34.8
31HK864	990796p48	general surface	0	3	HC	IS		P	B	2	6.5
31HK864	990796p49	general surface	0	1	HC	SW		P	BS	7.5	18.2
31HK864	990796p50	general surface	0	3	HC	WW		P	B	2	4.4
31HK864	990796p51	general surface	0	1	HC	WW		P	B	1	0.4
31HK864	990796p52	general surface	0	1	HC	WW		P	R	1	0.6
31HK864	990796p53	general surface	0	1	HC	PO		P		1	0.2
31HK864	990796a54	general surface	0	1	OH	elec. insulator			F	3	6.4
31HK864	990796a55	general surface	0	1	G	WC				3	2.8
31HK864	990796a56	general surface	0	1	G	WC				2	0.7
31HK864	990796a57	general surface	0	1	G	SO BOT			BS?	4	12.4
31HK864	990796a58	general surface	0	2	G	SO BOT			B	3	3.8
31HK864	990796a59	general surface	0	3	G	SO BOT			B	2	3.9
31HK864	990796a60	general surface	0	1	G	SO BOT			B	1	0.3
31HK864	990796a61	general surface	0	1	G	CL BOT			B	2	0.5
31HK864	990796a62	general surface	0	1	G	CL BOT			B	2	0.5
31HK864	990796a63	general surface	0	1	G	SO BOT			B	3.5	4
31HK864	990796a64	general surface	0	1	G	GR BOT			B	2	1.4
31HK864	990796a65	general surface	0	1	G	CL F			B	4	4
31HK864	990796a66	general surface	0	4	G	CL F			B	3	6.7

31HK864	990796a67	general surface	0	2	G	CL F			B	2	2
31HK864	990796a68	general surface	0	2	G	CL F			B	1	0.9
31HK864	990796a69	general surface	0	1	G	CL BOT			N	3	3.3
31HK864	990796a70	general surface	0	1	G	CL BOT			B	2	0.7
31HK864	990796a71	general surface	0	1	OH	coin	copper		WH	2	3.1
31HK864	990796m72	general surface	0	1	OH	brick			F	9	851.1
31HK864	990796m73	general surface	0	1	OH	brick			F	7	113.8
31HK864	990796m74	general surface	0	3	OH	brick			F	5	85.4
31HK864	990796m75	general surface	0	2	OH	brick			F	4	23.4
31HK864	990796m76	general surface	0	12	OH	brick			F	3	59.7
31HK864	990796m77	general surface	0	4	OH	brick			F	2	8.6
31HK864	990796a78	general surface	0	1	G	GR BOT				4	8.4
31HK864	990796a79	general surface	0	1	L	PP	MV		DS	1	0.2
31HK864	990796m80	general surface	0	1	L	ERF	Q			4	4.2
31HK864	990796m81	general surface	0	1	L	LRF	MV			1	0.1
31HK864	990796m82	general surface	0	1	L	LRF	Q			1	0.2
31HK864	990796a83	general surface	0	1	M	N	I			5	1.9
31HK864	990796a84	general surface	0	1	M	UD	I			6	71.7
31HK875	990118a1	general surface	0	1	L	PP	MV		PX	4	wt=7.2, Swannanoa (lower stem missing), wd=23mm, th= 8mm, l=38mm
31HK887	990130m1	T2, STP 6.5	BS	1	L	CS	Q			3	wt=5.7
31HK887	990130m2	T2, STP 6.5	BS	1	L	FF	Q			1	wt=0.1

Appendix C:

Artillery Firing Point (AFP) Condition Categories and
Examples of Military Related Disturbances

Artillery Firing Point Condition Categories

Condition Category I: Plantation pine or mixed pine and scrub oak stand/forest. Little surface evidence of erosion, disturbance from military excavations or past ground disturbing activities. Area is shovel tested on 30 m interval. Surface collections are opportunistically made in isolated high visibility patches (i.e., eroded/exposed military excavation areas) or along trails and firebreaks.

Figure 55. Representative environment of Artillery Firing Point Condition Category I.

Condition Category II: Plantation pine or mixed pine and scrub oak stand/forest. Obvious surface evidence areas of erosion, disturbance from military excavations or past ground disturbing activities. Area is shovel tested on 30 m interval. Surface collections are opportunistically made in high visibility patches (i.e., eroded/exposed military excavation areas) or along trails and firebreaks.

Figure 56. Representative environment of Artillery Firing Point Condition Category II.

Condition Category III: Old clear-cut field area. Well covered with young pines or scrub vegetation. Little surface evidence of erosion, disturbance from military excavations or past road construction activities. Area is shovel tested on 30 m interval. Surface collections are opportunistically made in isolated high visibility patches (i.e., eroded/exposed military excavation areas) or along trails and firebreaks.

Figure 57. Representative environment of Artillery Firing Point Condition Category III.

Condition Category IV: Old clear cut field area with scrub vegetation or grasses and scattered pine/scrub oak clusters. Obvious surface evidence of erosion, disturbance from military excavations or past ground disturbing activities. Area is shovel tested on 30 m interval. Surface collections are opportunistically made in high visibility patches or along trails and firebreaks.

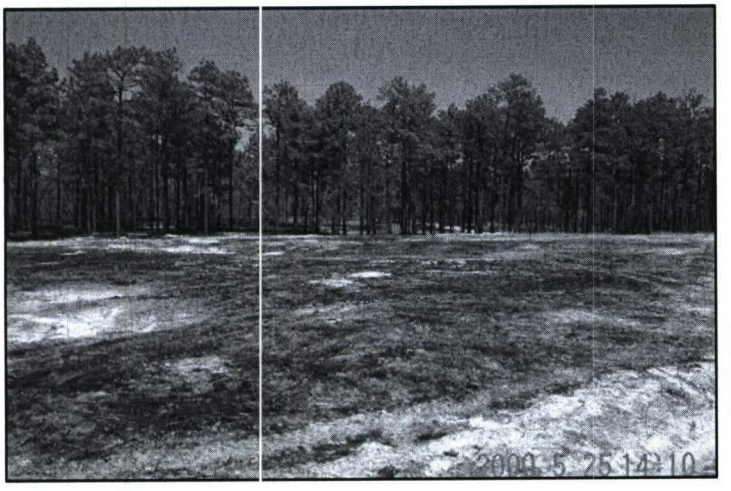

Figure 58. Representative environment of Artillery Firing Point Condition Category IV.

Condition Category V: Old clear-cut field area with scrub xeric/mesic vegetation/grasses and scattered pine/oak clusters. Readily apparent surface evidence of significant erosion and extensive disturbance from military excavations or past ground disturbing activities. Discernable, intact landforms with relatively undisturbed/minimally eroded deposits may be present. Area is 100% surface collected. Shovel testing is conducted when surface visibility is too low for adequate assessment. If surface visibility is high, shovel testing is opportunistically conducted in areas exhibiting the least surface visible evidence of disturbance. Such areas may be re-surface collected after they are either plowed or roller-chopped.

Figure 59. Representative environment of Artillery Firing Point Condition Category V.

Condition Category VI: Stripped or plowed field area with little or no vegetation. Readily apparent surface evidence of significant erosion/deflation and deep disturbance from repeated military excavations or past ground disturbing activities. Area is deflated with B-horizon stratum completely exposed or upper soil stratum is deeply disturbed with readily visible, homogenized mix of A/E/B/C-horizon soils. Such areas are 100% surface collected, but no shovel testing is necessary. Such areas may be re-surface collected after they are either plowed or roller-chopped.

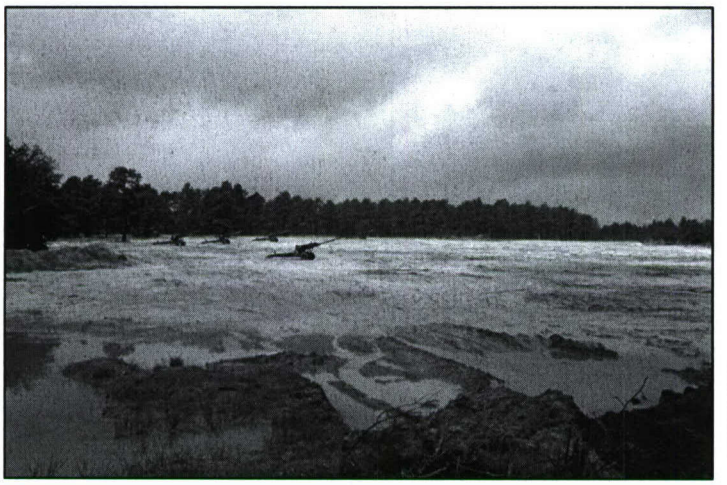

Figure 60. Representative environment of Artillery Firing Point Condition Category VI.

Condition Category VII: Sand or clay borrow pit areas. Areas are badly eroded and deflated from repeated extensive and intensive subsurface disturbances. Such areas are 100% surface collected, but no shovel testing is necessary.

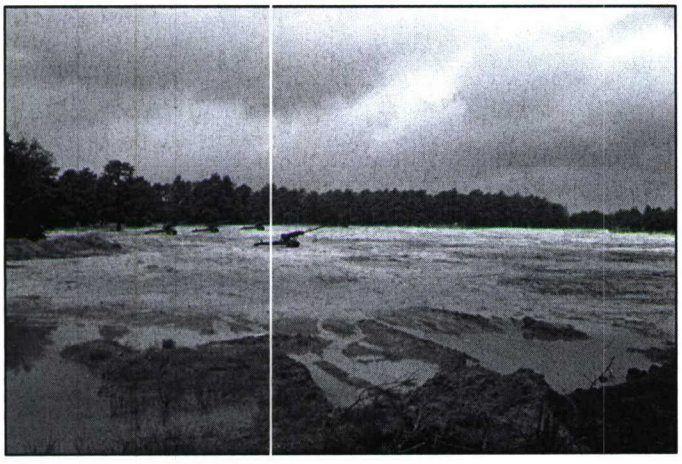

Figure 61. Representative environment of Artillery Firing Point Condition Category VII.

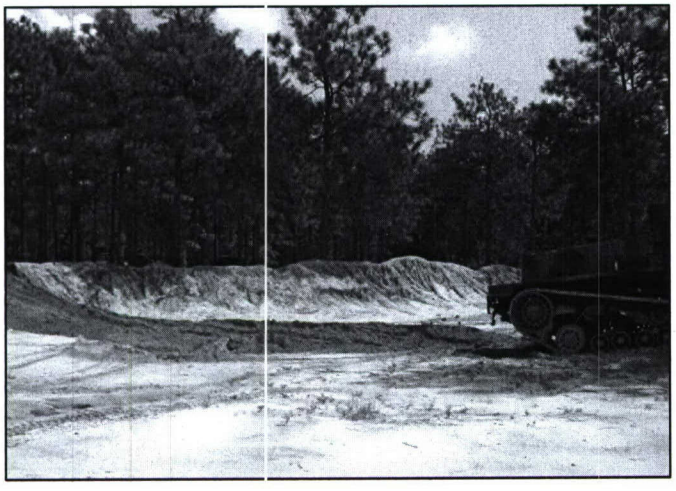

Figure 62. Example of mechanized disturbance on Artillery Firing Points. A combat engineer constructs earthwork defenses for a field artillery firebase. The upper soil column is scraped and pushed up to form high walls. Other deep excavation features associated with artillery training (not illustrated) may include: command-post (CP) bunkers, crew-served weapons positions ("foxholes"), and sanitation related pits (mess sumps or latrines)

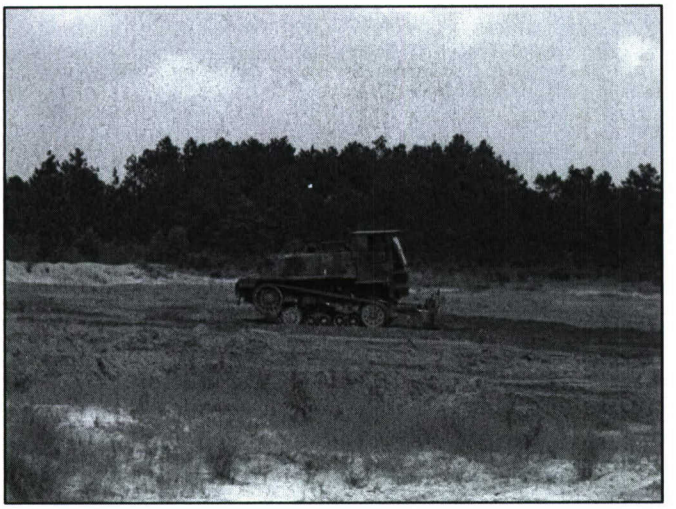

Figure 63. Example of mechanized disturbance on Artillery Firing Points. A combat engineer "restores" a firing position by leveling and grading defensive earthworks after a field artillery training exercise is complete.

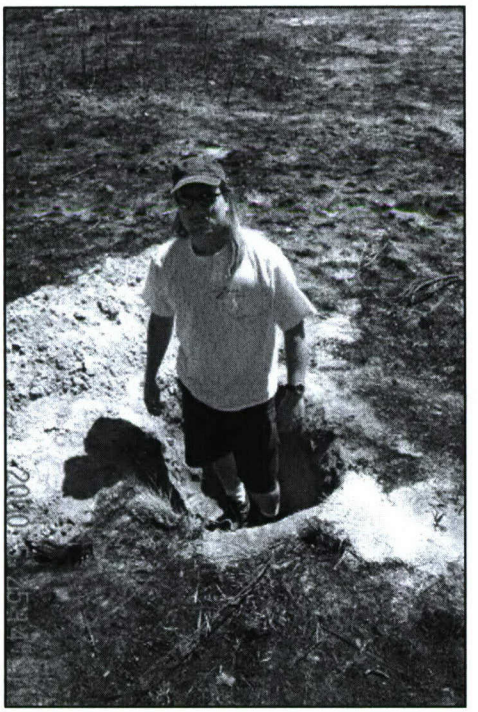

Figure 64. Example of "hand-dug" disturbance on Artillery Firing Points. A "powder pit" left open after a live-fire artillery training exercise. A four-gun howitzer battery minimally requires four powder pits when live-fire exercises are conducted from a given position.

Appendix D:

Artillery Firing Points (AFP) Surveyed for Cultural Resources
& Cleared for Military Training and LRAM Impacts

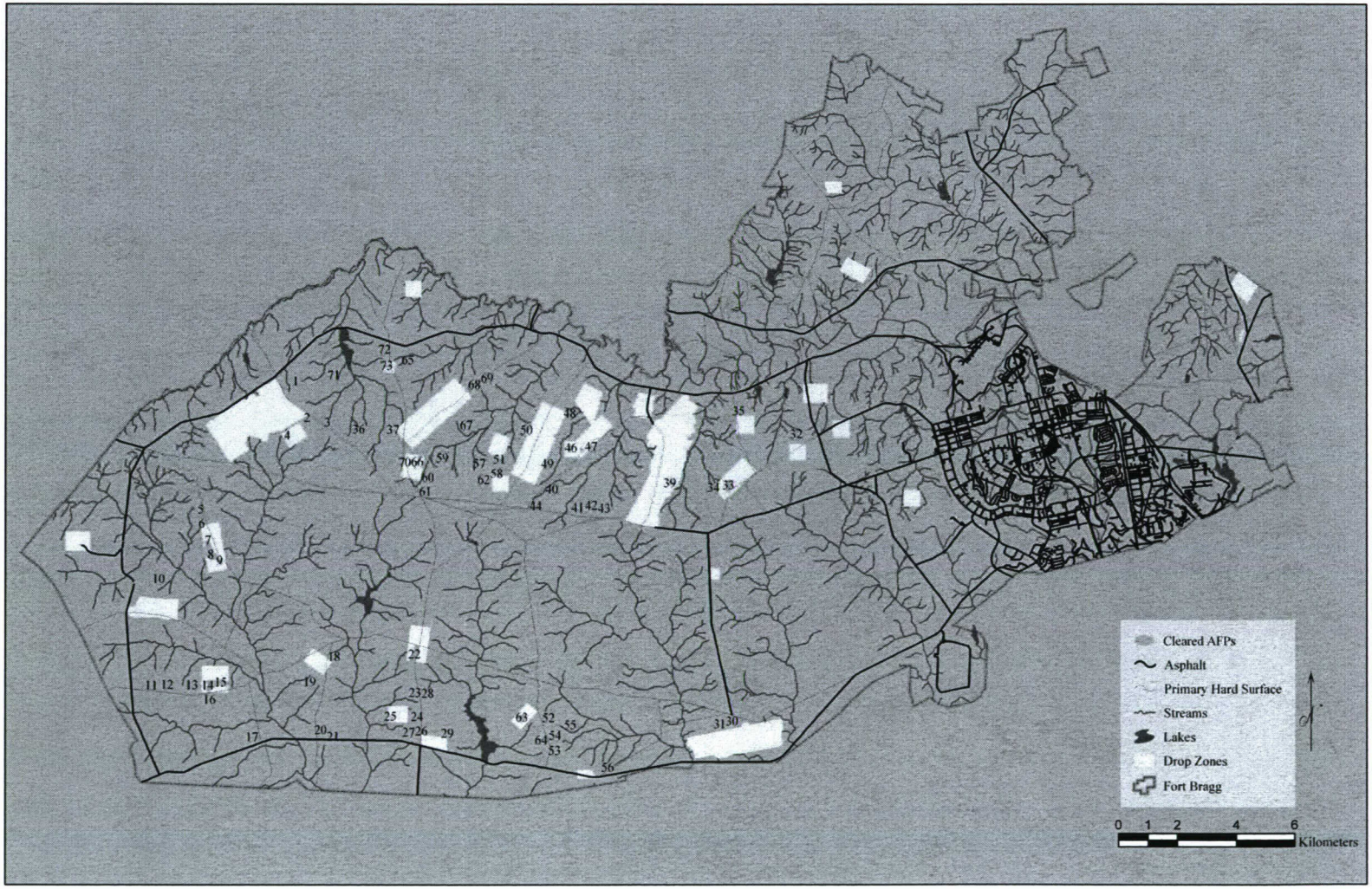

Figure 65. Map of Fort Bragg showing prominent natural/ cultural features and locations of 73 Artillery Firing Points (AFPs) surveyed for Cultural Resources (see Table 49 for AFP number key).

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Table 48. Artillery Firing Points surveyed for cultural resources and cleared for military training or LRAM activity impacts. Table includes location code for Figure 64 and further indicates AFP number and area/acres/perimeter surveyed and cleared (1998—2003).

Fig. 63 Key	Current LRAM AFP No.	'98-'99 LRAM AFP No.	Area (meters^2)	Acres	Perimeter (meters)
01	AA201	AA208	19,665.4	4.9	539.9
02	AA202	AA209	36,466.1	9.0	824.2
03	AA203	AA210	37,789.9	9.3	796.2
04	AA204		25,347.9	6.3	741.7
05	CC102	CC002	23,718.7	5.9	709.0
06	CC103	CC000	44,199.2	10.9	810.0
07	CC104	CC003	65,229.0	16.1	1065.9
08	CC105	CC004	122,030.3	30.2	1444.6
09	CC106	CC006	33,684.8	8.3	766.6
10	DD301	DD302	17,415.5	4.3	535.4
11	EE201		33,626.0	8.3	728.3
12	EE202		65,427.3	16.2	1546.3
13	EE203		35,702.6	8.8	786.5
14	EE204		75,585.2	18.7	1466.4
15	EE205	EE206	107,898.8	26.7	1488.6
16	EE301	EE207	56,463.4	14.0	1043.9
17	FF101	F001	47,900.4	11.8	950.9
18	GG201	GG207	26,942.7	6.7	664.5
19	GG202		40,857.1	10.1	893.6
20	GG204		20,898.0	5.2	590.6
21	GG205	GG206	16,473.0	4.1	566.8
22	HH101		109,843.4	27.1	1639.2
23	HH102		40,952.8	10.1	772.0
24	HH103	HH105	62,171.7	15.4	1043.1
25	HH104		25,871.0	6.4	1040.2
26	HH105		4,602.6	1.1	302.5
27	HH106		14,319.7	3.5	551.7
28	HH201		26,534.8	6.6	662.4
29	HH203		123,140.2	30.4	2056.7
30	II201		14,189.6	3.5	490.7
31	II202		60,278.8	14.9	1265.6
32	L101		15,398.8	3.8	551.0
33	M101	M001	78,555.1	19.4	1193.7
34	M102		121,036.6	29.9	1711.7
35	N201		14,090.3	3.5	481.4
36	NN001	NN199	35,474.6	8.8	835.9
37	NN002		40,000.6	9.9	890.7
38	P201		12,229.9	3.0	437.9
39	P202		12,275.6	3.0	448.1
40	R001		31,067.6	7.7	683.7
41	R003		20,706.8	5.1	616.8
42	R004		15,503.3	3.8	513.6
43	R005		32,714.7	8.1	847.7
44	R006		31,336.5	7.7	686.9

Table 48—Continued. Artillery Firing Points surveyed for cultural resources and cleared for military training or LRAM activity impacts. Table includes location code for Figure 64 and further indicates AFP number and area/acres/perimeter surveyed and cleared (1998—2003).

Fig. 63 Key	Current LRAM AFP No.	'98-'99 LRAM AFP No.	Area (meters^2)	Acres	Perimeter (meters)
45	S301		11,726.9	2.9	416.5
46	S302		24,191.7	6.0	747.0
47	S303	S301	16,492.8	4.1	503.6
48	T001		54,401.1	13.4	1001.9
49	T002		73,908.2	18.3	1153.1
50	T003	T105	34,710.6	8.6	731.1
51	T004		12,569.9	3.1	440.6
52	TT201		86,131.3	21.3	1189.2
53	TT202		37,405.5	9.2	749.5
54	TT203		50,978.6	12.6	1067.5
55	TT204		16,260.3	4.0	571.6
56	TT205		45,092.5	11.1	1354.7
57	U001		38,541.3	9.5	768.3
58	U002		34,722.8	8.6	776.9
59	U003		50,612.5	12.5	1081.4
60	U004		46,601.9	11.5	1113.6
61	U005		75,550.5	18.7	1096.4
62	U006		24,686.4	6.1	686.6
63	UU101	UU103	74,957.2	18.5	1192.9
64	UU102	UU104	54,940.2	13.6	1059.9
65	V101	V102	27,934.2	6.9	683.2
66	V201		43,576.5	10.8	1165.7
67	V202		33,883.9	8.4	817.7
68	V203		27,954.5	6.9	656.0
69	V204		41,419.2	10.2	907.5
70	V205		23,187.6	5.7	700.5
71	Y201		26,503.1	6.5	618.5
72	Y401		38,346.9	9.5	851.2
73	Y402		26,801.8	6.6	662.7

REVIEWER NOTES